

Report No. TSA-20-72-3

LEVEL II

(1)

**RECLASSIFICATION OF MATERIALS
LISTED AS TRANSPORTATION HEALTH HAZARDS**

K.C. Back

A.A. Thomas

J.D. MacEwen

6570th Aerospace Medical Research Laboratory (AFSC)
Wright-Patterson Air Force Base, Ohio



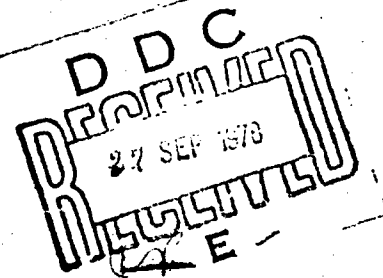
AUGUST 1972

FINAL REPORT

20060712059

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited



Prepared for
DEPARTMENT OF TRANSPORTATION
OFFICE OF THE ASSISTANT SECRETARY
FOR SAFETY AND CONSUMER AFFAIRS
Office of Hazardous Materials
Washington, D.C. 20590

78 08 16 004

AD-A059075

Report No. TSA-20-72-3

LEVEL II

(1)

**RECLASSIFICATION OF MATERIALS
LISTED AS TRANSPORTATION HEALTH HAZARDS**

K.C. Back

A.A. Thomas

J.D. MacEwen

6570th Aerospace Medical Research Laboratory (AFSC)
Wright-Patterson Air Force Base, Ohio



AUGUST 1972

FINAL REPORT

20060712059

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

DDC
REFORMED
27 SEP 1978
REGISTERED
E

Prepared for

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE ASSISTANT SECRETARY
FOR SAFETY AND CONSUMER AFFAIRS
Office of Hazardous Materials
Washington, D.C. 20590

Best Available Copy

78 08 16 004

AD-A059075

The contents of this report reflect the views of the authors who were responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policy of the Department of Transportation. This report does not constitute a standard, specification or regulation.

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. TSA-20-72-3	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle RECLASSIFICATION OF MATERIALS LISTED AS TRANSPORTATION HEALTH HAZARDS		5. Report Date August 1972
		6. Performing Organization Code 6570th AMRL/TH
7. Author(s) K. C. Back, A. A. Thomas, and J. D. MacEwen*		8. Performing Organization Report No. AMRL-TR-78-67
9. Performing Organization Name and Address 6570th Aerospace Medical Research Laboratory (AFSC), Wright-Patterson Air Force Base, Ohio 45433. (*SYSTEMED, Corporation--contractor to the Air Force)		10. Work Unit No.
		11. Contract or Grant No. DOT-AS-10028, /1 and /2
12. Sponsoring Agency Name and Address Office of Hazardous Materials, Office of the Assistant Secretary for Safety and Consumer Affairs, Department of Transportation, Washington, D. C. 20590		13. Type of Report and Period Covered Final February 1971-June 1972
		14. Sponsoring Agency Code TSA-20
15. Supplementary Notes		
16. Abstract <p>This study was performed to provide technical background and recommendations for assisting the Department of Transportation in considering a revised health hazards classification system. The study consisted of three phases. Phase I--An extensive literature search was conducted for pertinent human and acute animal toxicity data for about 200 materials, classed as Poison A, B or C in the Commodity List, Section 172.5, Title 49 CFR, and/or as Toxic (Class 6.1) in the Subsidiary Risk Category in the United Nations publication, Volume I, Transportation of Dangerous Goods, 1966. Materials were classified according to the proposed classification criteria, if valid data were adequate for evaluation. Tests were recommended for the materials for which data were missing or inadequate. Phase II--Inhalation (LC₅₀) toxicity tests were run on mice and rats for five materials and oral toxicity (LD₅₀) tests were run on mice and rats for 40 other materials. The phosphine evolution rate for aluminum phosphide in air (55% relative humidity) and in water were determined. The results have been summarized and the materials classified. Phase III--Verification inhalation toxicity (LC₅₀) tests were run on mice and rats exposed to chlorine, anhydrous ammonia and hydrogen sulfide. Results have been included and reflected in the classification of these materials. One other material was classified from literature data.</p>		
17. Key Words Toxicity, hazard, classification, inhalation toxicity, LC₅₀, LD₅₀, transportation, poison, PPM, mg/M³, oral toxicity		18. Distribution Statement Availability is unlimited. Document may be released to the National Technical Information Service, Springfield, Virginia 22151, for sale to the public.
19. Security Classif. (of this report) UNCLASSIFIED	20. Security Classif. (of this page) UNCLASSIFIED	21. No. of Pages
		22. Price

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	
Comments on Consolidation of Literature and Testing Data	1
Phase I----Literature Search and Evaluation	1
Phase II----Acute Oral and Inhalation Testing of Rats and Mice; Phosphine Evolution from Aluminum Phosphide; and Additional Literature Evaluation	5
Phase III --Acute Inhalation Testing of Rats and Mice with Ammonia, Chlorine and Hydrogen Sulfide	6
TABLE I Classification of DOT Class A, B and C Poisons from Literature Data (Based on Criteria from Page 7)	7
TABLE II Classification from Literature Data of Toxic Materials Listed Under Subsidiary Health Hazard Category of United Nations (Based on Criteria from Page 7)	18
TABLE III Summary Results of Acute Oral Toxicity Tests	24
TABLE IV Summary Results of Acute Inhalation Toxicity Tests	25
TABLE V Additional Results of Inhalation Toxicity Tests	26
APPENDIX A Data Sheets	A-1
APPENDIX B A Modified System for Classification	B-1
TABLE B-1 Compounds Whose Classification Would Change Under the Alternative Criteria	B-3

ACCESSION FOR	White Section <input checked="" type="checkbox"/> <input type="checkbox"/>	BY	DISTRIBUTION/AVAILABILITY CODES
NTIS	Buff Section		
DDC	UNCLASSIFIED	Dist.	AVAIL. END/ or SPECIAL
JUSTIFICATION			

A

INTRODUCTION

Comments on Consolidation of Literature and Testing Data

This final report, as initially prepared by the Air Force, was just for Phase I, which consisted of searching and evaluating literature data. Also, tests were recommended for specific materials for which data were considered insufficient. The draft Phase I final report generally listed inhalation data in parts per million (ppm), although for some liquids values were reported in milligrams per liter (mg/L). The Phase I finished report presented all inhalation data in milligrams per cubic meter (mg/M³). Conversion to ppm was necessary to have units consistent with CFR, Title 49 - Transportation, and CFR, Title 21 - Food and Drug classification criteria. Conversion values were provided by the Air Force for data sheets through 198. Subsequent ones were calculated by the sponsor using the formula:

$$\text{PPM (by volume)} = \frac{24.50 \times \text{mg/M}^3}{\text{Molecular Wt.}}$$

The advantage of including the Air Force toxicity testing data from Phases II and III, to have all the information in one document, seemed obvious. This consolidation was accomplished by the Technology Division, Office of Hazardous Materials (OHM). OHM confined its editing to consolidating the information provided on Phases I, II and III work.

Phase I--Literature Search and Evaluation

An extensive literature search was conducted to obtain human and animal acute toxicity data pertinent for the evaluation of the toxic hazard classification of 200 chemical materials. These were materials classed as poisons A, B or C in the "Commodity List, Section 172.5, Title 49 CFR," and those listed as toxic (Class 6.1) in the subsidiary risk (column 3) in the United Nations Publication "Volume I, Transportation of Dangerous Goods, 1966." These materials were reclassified as requested by the Department of Transportation according to the "Extremely Toxic" and "Highly Toxic" criteria shown in the Second Advance Notice of Proposed Rule Making, Docket No. HM-51 (36 F.R. 2934), published February 12, 1971.

The classifications assigned are not official regulatory classifications and are presented for technical information only. Whenever available, valid human toxicity data were given precedence over all animal data for determination of the toxicity classification.

A third classification of "Toxic" was used for some of those materials that did not fall in the above "Extremely Toxic" or "Highly Toxic" categories, but for which adequate data was available for categorization. During the course of the evaluation of toxicity data and assignment of classifications, we became aware that a number of very hazardous materials were based strictly upon the numerical criteria in Docket No. HM-51. We were concerned that users of the proposed revised commodity list would misinterpret the lack of classification as meaning nontoxic.

Most of these materials are toxic and, therefore, we have classified them for consideration by the Department of Transportation.

The "Toxic" category is a direct downward extension of the acute LC50 and LD50 levels used in the "Extremely Toxic" and "Highly Toxic" levels, mentioned previously. It corresponds to the "Toxic Substances" category found in Section 191.1, Title 21-Food and Drug, CFR, Revised as of January 1, 1970.

Among the materials which fell into the "Toxic" category are carbon monoxide, carbon disulphide and anhydrous ammonia. These materials are extremely hazardous in acute exposures because of lack of warning powers or because they produce an impaired ability for self-rescue in man. The high hazard of these materials requires some classification which does not permit careless treatment of accidental spills. The classification system used is shown below:

	<u>Extremely Toxic</u>	<u>Highly Toxic</u>	<u>Toxic</u>
Inhalation 1 Hour LC ₅₀	50 ppm or less (0.5 mg/L or less) ^{1/}	50-200 ppm (0.5-2 mg/L) ^{1/}	200-20,000 ppm (2-200 mg/L) ^{1/}
Oral 14-Day Single Dose LD ₅₀	5 mg/Kg or less	5-50 mg/Kg	50-5000 mg/Kg
Skin Absorption (Dermal) LD ₅₀	20 mg/Kg or less	20-200 mg/Kg	200-20,000 mg/Kg

^{1/} Applies to dusts and mists. $\text{Mg/M}^3 = 1000 \times \text{mg/L}$.

Since the new classifications were based solely on acute toxicity, all forms of a material (concentrates, solutions, mixtures, etc.) have been assigned to the same toxicity categories regardless of concentration of the active ingredients. No consideration was given to hazard potential of the materials reclassified.

Tables I and II list the materials from the two sources with their new classifications or the information needed to allow reclassification. The classification based upon inhalation toxicity, assigned several commodities, is higher than strict adherence to the PPM criteria on page 2 would indicate. This represents a professional judgment by the authors. The code numbers assigned to the chemicals reviewed were for our convenience only and were usually given to only the first form of a compound listed. For many materials we were unable to find suitable information for classification either because toxicity studies had not been performed, or existing data were not adequate to estimate the LD₅₀ or LC₅₀. The last column in Tables I and II identifies the information needed to classify these materials.

We do not recommend research on every material that could not be reclassified. Acute toxicity studies should be conducted on representative arsenical and mercurial compounds and, if similar toxicity is found, the list should be modified to combine them as one class for toxicity rating rather than listing individual compounds. (A number of materials were subsequently tested as shown in Tables III and IV.)

All materials that were classified, toxicity data, references used, and justification for classification are presented on individual sheets, found in Appendix A and are identified by name and code number. On the individual data sheets various systems for expression of toxicity are used. These system abbreviations are defined by the original authors of the research data as follows:

ALC	Approximate lethal concentration
ALC ₅₀ } ALC ₁₀₀ }	Approximate lethal concentration for 50% or 100% of animals exposed
ALD	Approximate lethal dose
ALD ₅₀ } ALD ₈₅ } ALD ₁₀₀ }	Approximate lethal dose for 50, 85 or 100% of animals used
LC ₅₀ } LC ₈₀ } LC ₁₀₀ }	Statistically derived lethal concentration for 50, 80 or 100% of animals exposed
LD	Lethal dose
LD ₅₀ } LD ₁₀₀ }	Statistically derived lethal dose for 50 or 100% of animals tested
MFD	Minimum fatal dose
MLC	Minimum lethal concentration
MLD	Minimum lethal dose
MLD ₅₀	Median lethal dose
Intolerable	Extremely unpleasant or painful concentration
Lethal	Lethal to all animals tested

A modified system for classification was suggested, namely, using milligrams per cubic meter (mg/M³) for expressing all inhalation toxicity values and setting the benchmarks for the three toxicity levels, while retaining the same oral and skin absorption units as were shown previously on page 2. These alternative criteria have been listed in Appendix B. Individual materials, whose classification would differ when evaluated by the two sets of criteria, are listed in Table B-1.

Phase II--Acute Oral and Inhalation Testing of Rats and Mice; Phosphine Evolution from Aluminum Phosphide; and Additional Literature Evaluation

Phase II consisted primarily of animal testing. Forty chemical materials were tested for oral toxicity and five others for inhalation toxicity in accordance with procedures indicated in Docket HM-51, mentioned earlier. Two animal species, rats and mice, were used in all tests. Oral toxicity test results (LD₅₀ values) and corresponding classifications have been reported in Table III. Similarly, inhalation LC₅₀ values and corresponding classifications have been listed in Table IV. Additional results from inhalation toxicity tests have been included in Table V. It was not possible to run tests at concentrations as high as desired because the silane-air mixtures ignited above a certain concentration. Data sheets, except for silane, have been included in Appendix A in numerical code sequence for materials tested and evaluated in Phase II.

Seven additional materials (Aluminum phosphide--201; Dimethyl sulfate--209; Epichlorohydrin--222; Ethylene chlorohydrin--224, Ethylenediamine--226; Pentachloroethane--236; and Toluene Diisocyanate--249) were classified based upon literature data.

There were a number of metallic phosphides on the DOT list of materials for toxicity evaluation. It was well known that these compounds are hazardous primarily because they generate phosphine (PH₃) on exposure to water or moist air. Aluminum phosphide (AIP) was chosen as representative of these compounds, and experiments were run to determine the rate of generation of PH₃ from AIP in water and in air of 55% relative humidity (RH). bubbles were observed when AIP was placed in water. It was necessary to make the solution acid (below pH 3.0) before noticeable generation of PH₃ took place. However, placing solid AIP in an air atmosphere of 55% RH resulted in a fairly linear rate of generation of PH₃ as measured by gas chromatography. Under these conditions, PH₃ was formed at a rate of 2.5 mg/min/g of AIP. If excess AIP were present in confined space, so that all the moisture in the 55% RH air was consumed, the final concentration of PH₃ could reach 4800 ppm. A data sheet (Code 201) appears in Appendix A.

**Phase III--Acute Inhalation Testing of Rats and Mice with Ammonia,
Chlorine and Hydrogen Sulfide**

Rat and mouse acute inhalation tests were run on anhydrous ammonia, chlorine and hydrogen sulfide, LC50 values and corresponding classifications have been listed in Table IV along with the Phase II results. Data sheets have been included in Appendix A in numerical code sequence.

TABLE I
CLASSIFICATION OF DOT CLASS A, B AND C POISONS
FROM LITERATURE DATA
(Based on Criteria from Page 2)

Code Number	Name	Toxicity Classification	Information Needed for Classification
001	Acetone cyanohydrin	EXTREMELY TOXIC	
002	Alcohol, allyl	TOXIC *	
003	Aldrin	HIGHLY TOXIC	
---	Aldrin mixtures, liquid, with more than 60 percent aldrin	HIGHLY TOXIC	
---	Aldrin mixtures, dry, with more than 65 percent aldrin	HIGHLY TOXIC	
004	Ammonium arsenate, solid		ORAL LD ₅₀
005	Aniline oil, liquid	TOXIC	
006	Arsenic acid, solid	HIGHLY TOXIC	
---	Arsenic acid, liquid	HIGHLY TOXIC	
007	Arsenic bromide, solid		ORAL LD ₅₀
008	Arsenic chloride (arsenous), liquid	EXTREMELY TOXIC	
009	Arsenic iodide, solid		ORAL LD ₅₀
010	Arsenic pentoxide, solid	HIGHLY TOXIC	

*Professional judgment concerning dermal test.

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
011	Arsenic solid		ORAL LD ₅₀
012	Arsenic sulfide (powder), solid		ORAL LD ₅₀
013	Arsenic trichloride, liquid	EXTREMELY TOXIC	
014	Arsenic trioxide, solid (arsenic, white, solid arsenous acid, solid)	HIGHLY TOXIC	
015	Arsenic, white, solid	HIGHLY TOXIC	
016	Arsenous acid, solid	HIGHLY TOXIC	
017	Arsenous and mercuric iodide solution, liquid		ORAL LD ₅₀
018	Barium cyanide, solid		ORAL LD ₅₀
019	Bordeaux arsenites, liquid		ORAL LD ₅₀
---	Bordeaux arsenites, solid		ORAL LD ₅₀
020	Bromacetone, liquid	EXTREMELY TOXIC	
021	Brombenzyl cyanide, liquid	EXTREMELY TOXIC	
022	Brucine, solid (dimethoxy strychnine)	TOXIC	
023	Cacodylic acid, solid (dimethylarsenic)		ORAL LD ₅₀
024	Calcium arsenate, solid	TOXIC	
025	Calcium arsenite, solid		ORAL LD ₅₀

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
026	Carbolic acid (phenol), liquid, (liquid tar acid containing over 50 percent benzo-phenol)	TOXIC	
027	Carbolic acid (phenol), solid	TOXIC	
028	Chloracetophenone, gas, liquid or solid	EXTREMELY TOXIC	
029	Chlorpicrin and nonflammable, nonliquefied compressed gas mixtures	EXTREMELY TOXIC	
---	Chlorpicrin, liquid	EXTREMELY TOXIC	
---	Chlorpicrin, absorbed	EXTREMELY TOXIC	
---	Chlorpicrin mixtures (containing no compressed gas or poisonous liquid, class A)	EXTREMELY TOXIC	
030	Chlorpicrin and methyl chloride mixtures	EXTREMELY TOXIC	
031	Cocculus, solid (fish berry)	HIGHLY TOXIC	
032	Copper acetoarsenite, solid (emerald green, imperial green, Kings green, moss green, meadow green, mitis green, parrot green, Vienna green, paris green)	TOXIC	
033	Copper arsenite, solid (Scheele's green, cupric green, copper orthoarsenite, Swedish green)		OR. L LD ₅₀
034	Cyanide of calcium or cyanide of calcium mixtures, solid	HIGHLY TOXIC	

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
035	Cyanide of potassium, liquid	HIGHLY TOXIC	
---	Cyanide of potassium, solid	HIGHLY TOXIC	
036	Cyanide of sodium, liquid	HIGHLY TOXIC	
---	Cyanide of sodium, solid	HIGHLY TOXIC	
037	Cyanogen bromide	EXTREMELY TOXIC	
038	Cyanogen chloride containing less than 0.9 percent water	EXTREMELY TOXIC	
039	Cyanogen gas (CN) ₂	HIGHLY TOXIC *	
040	Dinitrobenzol, solid	HIGHLY TOXIC	
---	Dinitrobenzol, liquid	HIGHLY TOXIC	
041	Dinitrochlorbenzol, solid (dinitrochlorobenzene, chlorodinitrobenzol)	TOXIC	
042	Dinitrophenol solutions	HIGHLY TOXIC	
043	Diphenylaminechlorarsine, gas, liquid, or solid	EXTREMELY TOXIC	
044	Diphenylchlorarsine, solid	EXTREMELY TOXIC	
045	Ethylchloroarsine	EXTREMELY TOXIC	
046	Ferric arsenate, solid		ORAL LD ₅₀

*Professional judgment.

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
047	Ferric arsenite, solid		ORAL LD ₅₀
048	Ferrous arsenate (iron arsenate), solid		ORAL LD ₅₀
049	Hexaethyl tetraphosphate and compressed gas mixture	HIGHLY TOXIC	
---	Hexaethyl tetraphosphate, liquid	HIGHLY TOXIC	
---	Hexaethyl tetraphosphate mixture, dry	HIGHLY TOXIC	
---	Hexaethyl tetraphosphate mixture, liquid	HIGHLY TOXIC	
050	Hydrocyanic acid, liquefied	EXTREMELY TOXIC	
---	Hydrocyanic acid (prussic), liquid	EXTREMELY TOXIC	
---	Hydrocyanic acid solutions	EXTREMELY TOXIC	
051	Lead arsenate, solid	TOXIC	ORAL LD ₅₀
052	Lead arsenite, solid		
053	Lewisite	EXTREMELY TOXIC	ORAL LD ₅₀
054	London purple, solid		
055	Magnesium arsenate, solid	TOXIC	
056	Mercuric acetate	TOXIC	

TABLE 1 continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
057	Mercuric-ammonium chloride, solid		ORAL LD ₅₀
058	Mercuric benzoate, solid		ORAL LD ₅₀
059	Mercuric bromide, solid		ORAL LD ₅₀
060	Mercuric cyanide, solid	HIGHLY TOXIC	
061	Mercuric iodide, solid	HIGHLY TOXIC	
---	Mercuric iodide solution	HIGHLY TOXIC	
062	Mercuric oleate, solid		ORAL LD ₅₀
063	Mercuric oxide (red), solid		ORAL LD ₅₀
064	Mercuric oxide (yellow), solid	HIGHLY TOXIC	
065	Mercuric oxycyanide, solid		ORAL LD ₅₀
066	Mercuric-potassium cyanide, solid		ORAL LD ₅₀
067	Mercuric-potassium iodide, solid		ORAL LD ₅₀
068	Mercuric salicylate, solid		ORAL LD ₅₀
069	Mercuric subsulfate, solid		ORAL LD ₅₀
070	Mercuric sulfate, solid	HIGHLY TOXIC	
071	Mercuric sulfo cyanate, solid (mercuric thiocyanate)		ORAL LD ₅₀

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
072	Mercuriol (mercury nucleate), solid		ORAL LD50
073	Mercurous bromide, solid		ORAL LD50
074	Mercurous gluconate, solid		ORAL LD50
075	Mercurous iodide, solid	TOXIC	
076	Mercurous nitrate, solid	TOXIC	
077	Mercurous oxide, black, solid		ORAL LD50
078	Mercurous sulfate, solid		ORAL LD50
079	Mercury acetate, solid		ORAL LD50
080	Mercury bichloride, solid (mercuric chloride)	HIGHLY TOXIC	
081	Mercury bisulfate, solid		ORAL LD50
082	Mercury cyanide, solid		ORAL LD50
083	Methyl bromide and chlorpicrin mixture, liquid	EXTREMELY TOXIC	
084	Methyl bromide and ethylene dibromide mixture, liquid	TOXIC	
---	Methyl bromide and nonflammable, nonliquefied compressed gas mixtures, liquid	TOXIC	
085	Methyl bromide, liquid (bromomethane)	TOXIC	

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
086	Methyl parathion, liquid	HIGHLY TOXIC	
---	Methyl parathion mixture, dry	HIGHLY TOXIC	
---	Methyl parathion mixture, liquid	HIGHLY TOXIC	
087	Monochloracetone, stabilized	EXTREMELY TOXIC	
088	Mustard gas	EXTREMELY TOXIC	
089	Nickel cyanide, solid		ORAL LD ₅₀
090	Nicotine hydrochloride	EXTREMELY TOXIC	
091	Nicotine, liquid	EXTREMELY TOXIC	
092	Nicotine salicylate		ORAL LD ₅₀
093	Nicotine sulfate, liquid	HIGHLY TOXIC	
---	Nicotine sulfate, solid	HIGHLY TOXIC	
094	Nicotine tartrate	EXTREMELY TOXIC	
095	Nitric oxide	EXTREMELY TOXIC*	
096	Nitrobenzol, liquid (oil of mirbane)	TOXIC	
097	Nitrochlorbenzene, ortho, liquid		ORAL LD ₅₀
098	Nitrochlorbenzene, meta or para, solid		ORAL LD ₅₀

*Professional judgment.

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
099	Nitrogen dioxide, liquid	EXTREMELY TOXIC *	
100	Nitrogen peroxide, liquid	EXTREMELY TOXIC *	
101	Nitrogen tetroxide, liquid	EXTREMELY TOXIC *	
102	Nitrogen tetroxide-nitric oxide mixtures containing up to 33.2 percent weight nitric oxide	EXTREMELY TOXIC *	
199	Nitroxylol		ORAL LD ₅₀
103	Ortho-nitroaniline	TOXIC	
104	Paranitraniline (paranitroaniline), solid		ORAL LD ₅₀
105	Parathion and compressed gas mixture	EXTREMELY TOXIC	
---	Parathion, liquid	EXTREMELY TOXIC	
---	Parathion, mixture, dry	EXTREMELY TOXIC	
---	Parathion mixture, liquid	EXTREMELY TOXIC	
106	Paris green, solid (copper acetoarsenite)	TOXIC	
107	Perchloromethyl mercaptan	EXTREMELY TOXIC	
108	Phenylcarbylamine chloride	EXTREMELY TOXIC	
109	Phenyldichlorarsine, liquid	EXTREMELY TOXIC	

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
110	Phosgene (diphosgene)	EXTREMELY TOXIC	
111	Phosphoric anhydride		ORAL LD ₅₀
112	Potassium arsenate, solid		ORAL LD ₅₀
113	Potassium arsenite, solid	HIGHLY TOXIC	
114	Sodium arsenate, solid		ORAL LD ₅₀
115	Sodium arsenite (solution), liquid	HIGHLY TOXIC	
116	Sodium azide	HIGHLY TOXIC	
117	Sodium cacodylate, solid (sodium dimethyl arsenate)		ORAL LD ₅₀
118	Strontium arsenite, solid		ORAL LD ₅₀
119	Strychnine and salts thereof, solid	EXTREMELY TOXIC	
120	Tetraethyl dithiopyrophosphate, liquid	EXTREMELY TOXIC	
---	Tetraethyl dithiopyrophosphate and compressed gas mixture	EXTREMELY TOXIC	
121	Tetraethyl dithiopyrophosphate mixture, liquid	EXTREMELY TOXIC	
---	Tetraethyl dithiopyrophosphate mixture, dry	EXTREMELY TOXIC	
122	Tetraethyl lead	HIGHLY TOXIC	

TABLE I continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
123	Tetraethyl pyrophosphate and compressed gas mixture	EXTREMELY TOXIC	
---	Tetraethyl pyrophosphate, liquid	EXTREMELY TOXIC	
124	Tetraethyl pyrophosphate mixture, dry	EXTREMELY TOXIC	
---	Tetraethyl pyrophosphate mixture, liquid	EXTREMELY TOXIC	
125	Thallium sulfate, solid	HIGHLY TOXIC	
126	Thiophosgene (Thiocarbonyl chloride)		1 HOUR-LC ₅₀
127	Xylol bromide	HIGHLY TOXIC	
128	Zinc arsenate		ORAL LD ₅₀
129	Zinc arsenite, solid		ORAL LD ₅₀

TABLE II

CLASSIFICATION FROM LITERATURE DATA OF TOXIC
MATERIALS LISTED UNDER UNITED NATIONS
SUBSIDIARY HEALTH HAZARD CATEGORY
(Based on Criteria from Page 2)

Code Number	Name	Toxicity Classification	Information Needed for Classification
130	Acid mixtures, hydrofluoric and sulphuric		ORAL LD ₅₀
131	Acrolein (Acrolein), inhibited	EXTREMELY TOXIC	
132	Acrylonitrile, inhibited	TOXIC	
002	Allyl alcohol	TOXIC	
133	Allyl chloride	TOXIC	
134	Aluminium ferrosilicon powder	EXTREMELY TOXIC	
135	Ammonia, anhydrous, liquefied and ammonia solutions having a density (specific gravity) of less than 0.880 at 15°C	TOXIC	
136	Antimony pentafluoride		ORAL LD ₅₀
137	Barium azide, dry or containing, by weight, less than 50% water or alcohol		ORAL LD ₅₀
138	Barium chlorate		ORAL LD ₅₀
139	Barium nitrate		ORAL LD ₅₀
140	Barium perchlorate		ORAL LD ₅₀

TABLE II continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
141	Barium permanganate		ORAL LD ₅₀
142	Barium peroxide (Barium binoxide, Barium dioxide, Barium superoxide)		ORAL LD ₅₀
143	Boron trichloride		1 HOUR-LC ₅₀
144	Boron trifluoride		1 HOUR-LC ₅₀
145	Bromine pentafluoride		1 HOUR-LC ₅₀
146	Bromine and solutions of bromine		1 HOUR-LC ₅₀
147	Bromine trifluoride		1 HOUR-LC ₅₀
148	Carbon dioxide and ethylene oxide mixtures, containing not more than 10% carbon dioxide	TOXIC	
149	Carbon disulphide (Carbon bisulphide)	TOXIC	
150	Carbon monoxide	TOXIC	
151	Carbon tetrachloride	TOXIC	
152	Chlorine	HIGHLY TOXIC *	
153	Chlorine trifluoride	HIGHLY TOXIC *	
083	Chloropicrin and methyl bromide mixtures	EXTREMELY TOXIC	
154	Chloropicrin and methyl chloride mixtures	EXTREMELY TOXIC	

TABLE II continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
155	Chloroprene, inhibited	TOXIC	
156	Coal gas	TOXIC	
157	Cupriethylenediamine, solution		ORAL LD ₅₀
158	Cyanogen, liquefied	TOXIC	
159	Cyclonite (Cyclotrimethylenetrinitramine, or Hexogene, or R. D. X.)	TOXIC	
160	Decaborane	HIGHLY TOXIC	
161	Diborane	EXTREMELY TOXIC *	
162	1-1 Difluoroethylene	Below TOXIC	
163	Dinitrophenol, dry or containing, by weight, less than 15% water	HIGHLY TOXIC	
---	Dinitrophenol, containing, by weight, at least 15% water	HIGHLY TOXIC	
164	Dipicrylamine (Hexanitrodiphenylamine or Hexyl)		ORAL LD ₅₀
165	Ethyl chloroformate (Ethyl chlorocarbonate)		1 HOUR-LC ₅₀
166	Ethylene oxide (Oxirane, Epoxycethane) containing not more than 0.2% nitrogen	TOXIC	
167	Ethyleneimine, inhibited	EXTREMELY TOXIC	

*Professional judgment.

TABLE II continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
168	Ferrosilicon, containing more than 30% and less than 90% of this substance	EXTREMELY TOXIC	
169	Fluorine	EXTREMELY TOXIC*	
170	Hexamethylenediamine		ORAL LD ₅₀ DERMAL LD ₅₀
171	Hydrazine, anhydrous, and aqueous solutions of hydrazine containing not more than 36% by weight, water	HIGHLY TOXIC	
---	Hydrazine hydrate and aqueous solutions of hydrazine containing more than 36% by weight, water	HIGHLY TOXIC	
172	Hydrofluoric acid solution (Fluoric acid, Hydrogen fluoride solution)	HIGHLY TOXIC*	
173	Hydrogen bromide, anhydrous	TOXIC	
---	Hydrogen cyanide (Hydrocyanic acid), anhydrous, stabilized	EXTREMELY TOXIC	
174	Hydrogen fluoride, anhydrous	HIGHLY TOXIC*	
175	Hydrogen sulphide, (sulphuretted hydrogen) liquified	HIGHLY TOXIC*	
176	Iron pentacarbonyl	HIGHLY TOXIC	
177	Lead nitrate	TOXIC	

TABLE II continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
178	Lead perchlorate		ORAL LD ₅₀
200	Magnesium phosphide	EXTREMELY TOXIC	
179	Methanol (Methyl alcohol, Wood alcohol, Columbian spirits)	Below TOXIC	
085	Methyl bromide (Bromomethane)	TOXIC	
180	Methyl chloroformate (Methyl chlorocarbonate)		1 HOUR-LC ₅₀
181	Methylmercaptan		1 HOUR-LC ₅₀
182	Nickel carbonyl	EXTREMELY TOXIC	
183	Nitric acid, red fuming	EXTREMELY TOXIC *	
095	Nitric oxide	EXTREMELY TOXIC *	
184	Nitric oxide and nitrogen tetroxide mixtures	EXTREMELY TOXIC *	
099	Nitrogen dioxide (Nitrogen tetroxide), liquefied	EXTREMELY TOXIC *	
185	Nitroglycerin, desensitized with at least 40% by weight, non-volatile phlegmatizer	TOXIC	
110	Phosgene (Carbonyl chloride)	EXTREMELY TOXIC	
187	Phosphorus, white or yellow, dry or under water or in solution	EXTREMELY TOXIC	

*Professional judgment.

TABLE II continued

Code Number	Name	Toxicity Classification	Information Needed for Classification
188	Potassium bifluoride	TOXIC	
189	Potassium fluoride	TOXIC	
190	Potassium phosphide	EXTREMELY TOXIC	ORAL LD ₅₀
191	Potassium sulphide, hydrated		
192	Pyridine	TOXIC	
193	Silicon tetrafluoride	TOXIC	
194	Sodium hydrogen sulphate, containing more than 3% free acid		ORAL LD ₅₀
195	Sodium phosphide	EXTREMELY TOXIC	
196	Strontium phosphide	EXTREMELY TOXIC	
197	Sulphur dioxide, liquefied	HIGHLY TOXIC *	
198	Sulphuric acid fuming	EXTREMELY TOXIC	

*Professional judgment.

Table III

SUMMARY RESULTS OF ACUTE ORAL TOXICITY TESTS

Code Number	Compound	LD ₅₀ (mg/Kg)		Classification
		Rat	Mouse	
024	Calcium arsenate	812	794	Toxic
056	Mercuric acetate	76	62	Toxic
060	Mercuric cyanide	26	33	Highly Toxic
064	Mercuric oxide	18	22	Highly Toxic
070	Mercuric sulfate	57	40	Highly Toxic
076	Mercurous nitrate	297	388	Toxic
093	Nicotine sulfate	75	16	Highly Toxic
103	o-nitroaniline	3564	1288	Toxic
202	Aniline hydrochloride	1072	841	Toxic
203	Benzidine	566	214	Toxic
204	Benzyl chloride	1231	1624	Toxic
205	Benzylidene chloride	3249	2462	Toxic
206	o-chloronitrobenzene	268	135	Toxic
208	p-chloronitrobenzene	812	1414	Toxic
214	4,6-dinitro-orthocresol	33	21	Highly Toxic
216	2,3-dinitrotoluene	1122	1072	Toxic
217	2,4-dinitrotoluene	268	1625	Toxic
218	2,5-dinitrotoluene	707	1231	Toxic
219	2,6-dinitrotoluene	177	1000	Toxic
220	3,4-dinitrotoluene	1072	1414	Toxic
227	2,2-dithiobisbenzothiozole	>12,000	>12,000	Below Toxic
228	m-nitroaniline	535	308	Toxic
229	p-nitroaniline	3249	812	Toxic
230	o-nitrophenol	2828	1297	Toxic
231	m-nitrophenol	933	1414	Toxic
232	p-nitrophenol	616	467	Toxic
233	o-nitrotoluene	891	2462	Toxic
234	m-nitrotoluene	1072	1231	Toxic
235	p-nitrotoluene	2144	1231	Toxic
238	2,3-xylidine	933	1072	Toxic
239	2,4-xylidine	467	250	Toxic
240	2,5-xylidine	1297	841	Toxic
241	2,6-xylidine	1231	707	Toxic
242	3,4-xylidine	812	707	Toxic
243	3,5-xylidine	707	421	Toxic
244	1-chloronaphthalene	1540	1091	Toxic
245	2-chloronaphthalene	2078	886	Toxic
246	Mixed cresols	1454	561	Toxic
247	2,4-dichlorophenol	2830	1625	Toxic
248	Diethyl sulfate	1412	647	Toxic

TABLE IV
SUMMARY RESULTS OF ACUTE INHALATION TOXICITY TESTS
(1-HOUR EXPOSURE)

Code Number	Compound	LC ₅₀				Classi- fica- tion (PPM basis)
		Rats		Mice		
		PPM	Mg/M ³	PPM	Mg/M ³	
250	Anhydrous ammonia	7,338	5,100	4,837	3,360	Toxic
204	Benzyl chloride ^{2/}	-----	-----	-----	-----	Toxic
205	Benzylidene chloride ^{2/}	-----	-----	-----	-----	Toxic
152	Chlorine	293	850	137	397	Toxic
251	Ethyl bromide	26,980	120,330	16,230	72,385	Toxic
173	Hydrogen bromide	2,858	9,450	814	2,690	Toxic
175	Hydrogen sulfide	713	990	673	925	Toxic
1/	Silane ^{3/}	-----	-----	-----	-----	Below Toxic

1/ No data sheet included in Appendix A.

2/ Rats and mice survived exposure to 2 mg/liter (2000 mg/M³) concentrations of these materials for one hour.

3/ 4-Hour exposure to 13,090 mg/M³ of silane caused no death in rats, but four out of ten mice died in four days. No mice died from two hour exposure. Extrapolation to 1-hour exposure indicates the LC₅₀ is below "Toxic" range and well into the explosive range (vapor-air mixture explosive limits). No rodent deaths occurred from 1-hour exposure at a concentration of silane below the lower explosive limit.

Table V

ADDITIONAL RESULTS OF INHALATION TOXICITY TESTS

<u>Compound</u>	<u>Concentration (ppm)</u>	<u>Time of Exposure (hours)</u>	<u>Animal Species</u>	<u>Mortality Ratio</u>
Silane	1,000	1.25	Rat	0/5
	4,000	1.0	Rat	0/5
	10,000	4.0	Rat	0/5
	6,600	1.0	Mouse	0/5
	10,000	4.0	Mouse	4/10
	10,000	2.0	Mouse	0/10
HBr	3,822	1.0	Rat	10/10
	3,711	1.0	Rat	7/10
	3,253	1.0	Rat	6/10
	2,759	1.0	Rat	4/10
	2,328	1.0	Rat	4/10
	2,205	1.0	Rat	1/10
	1,163	1.0	Mouse	10/10
	1,036	1.0	Mouse	9/10
	875	1.0	Mouse	7/10
	507	1.0	Mouse	0/10
Benzylidene chloride	76 (0.5 mg/L)	1.0	Rat	0/10
	76 (0.5 mg/L)	1.0	Mouse	0/10
Benzyl chloride	97 (0.5 mg/L)	1.0	Rat	0/10
	97 (0.5 mg/L)	1.0	Mouse	0/10
Ethyl bromide	20,000	1.0	Rat	0/10
	20,000	1.0	Mouse	10/10
	15,000	1.0	Mouse	4/10
	10,000	1.0	Mouse	0/10

APPENDIX A
DATA SHEETS

TOXICITY DATA SHEET

COMPOUND: ACETONE CYANOHYDRIN
(2 Methylactonitrile, α -Hydroxyisobutyronitrile)

CODE: 001

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat (4hr)	217 (62)	ALC ₅₀	1.3
Mouse(2hr)	2000 (575)	LC ₅₀	1.5
Dog			
Monkey			
Other			
Rat(4hr)	434 (125)	Lethal	1.2

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	13.3	LD ₅₀	1.1
Mouse	2.9	LD ₅₀	1.1
Dog			
Monkey			
Cat			
Guinea Pig	9	LD ₅₀	1.1
Other(Rabbit)	13.5	LD ₅₀	1.1

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS.**	REF.
1. Rat	S. C.	8.5	Approx. MLD	1.6
2. Rabbit	Skin	18	LD ₅₀	1.2
3.				
4.				
5.				
6.				

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

001

Rabbit dermal toxicity falls within the "Extremely Toxic" category. This material contains approximately 0.2% HCN and readily decomposes to HCN in alkaline media. Human fatalities have been reported (1,4) from inhalation and skin contact.

REFERENCES:

- 1.1 Shkodich, P. E., Hyg. Sanit., 31:335, 1966.
- 1.2 Flury, Abderhaldens Hdb. 4.7b:1340.
- 1.3 Smyth, H. F., et al., Amer. Ind. Hyg. Assoc. J. 23:95, 1962.
- 1.4 Krefft, S., Arch. fur Gewerberpathol. and Gewerberhyg, 14:110, 1955.
- 1.5 Gabor, S., et al., Igiena, 11:27, 1962.
- 1.6 Magos, L., Brit. J. Ind. Med., 19:283, 1962.

TOXICITY DATA SHEET

COMPOUND: ALCOHOL, ALLYL

CODE: 002

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat(4hr)	594 (250)	ALC ₅₀	2.3
Mouse			
Dog			
Monkey(4hr)	2370 (1000)	Lethal	2.2
Other			
Rabbit(4hr)	2370 (1000)	Lethal	2.2
Rat(1hr)	2370 (1000)	ALC ₅₀	2.1
Rat(1hr)	3840 (1620)	LC ₅₀	2.4

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	64	ALD ₅₀	2.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS.**	REF.
1. Rabbit	Skin	53	ALC ₅₀	2.1
2. Mouse	I. P.	42-60	LD ₅₀	2.4
3. Rabbit	Skin	89	LD ₅₀	2.4
4.				
5.				
6.				

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

002

The inhalation and oral toxicity of this compound falls within the "Toxic" category even though the dermal toxicity falls within the highly toxic category. Since the first two routes of entry are most pertinent to transportation accidents allyl alcohol was classified as "Toxic."

REFERENCES:

- 2.1 Smyth, H. F. and C. P. Carpenter, Amer. Ind. Hyg. Assoc. J. 30:63, 1948.
- 2.2 McCord, C. P., JAMA, 98:2269, 1932.
- 2.3 Carpenter, C. P., et al., Amer. Ind. Hyg. Assoc. J. 31:343, 1949.
- 2.4 Dunlap, M. K., et al., Arch. Ind. Health, 18:303, 1958.

TOXICITY DATA SHEET

COMPOUND: ALDRIN

CODE: 003

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	39-60	LD ₅₀	3.3
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other - Rat	52-59	LD ₅₀	3.1
Rat	69	ALD ₅₀	3.2

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	Skin	98	LD ₅₀	3.3
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

*** Dose in mg/Kg

JUSTIFICATION:

003

Oral and dermal toxicity falls within "Highly Toxic" category.

REFERENCES:

- 3.1 Ball, W. L. et al., Arch. Ind. Hyg. Occup. Med., 7:292, 1952
- 3.2 Lehman, A. J., Bull. Assoc. F. & D. Off., 15:122, 1951.
- 3.3 Gaines, T. B., Toxicol. App. Pharmacol., 14:515, 1969.

TOXICITY DATA SHEET

COMPOUND: ANILINE OIL, Liquid

CODE: 005

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat(4hr)	950 (250)	ALC ₅₀	5.2
Mouse(7hr)	660 (175)	LC ₅₀	5.3
Dog			
Monkey			
Other			
Rat(4hr)	2100 (552)	ALC ₅₀	5.4

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog	195	ALD ₅₀	5.3
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS.**	REF.
1. Guinea Pig	Skin	1060	LD ₅₀	5.1
2. Rabbit	I. V.	64	LD ₅₀	5.4
3. Rabbit	Skin	2500-5000	LD ₅₀	5.4
4. Dog	I. V.	200	Lethal	5.5
5. Cat	Skin	1540	Lethal	5.3
6. Dog	Skin	1540	Lethal	5.3

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

005

Oral and dermal toxicity data fall within the "Toxic" category. The inhalation toxicity values fall in the "Extremely Toxic" classification but are above saturation vapor pressure concentrations which are, therefore, unrealistic for consideration in ranking of toxicity classes for transportation accidents.

REFERENCES:

- 5.1 Smyth H. F. and C. P. Carpenter, J. Ind. Hyg. & Toxicol., 27:93, 1945.
- 5.2 Carpenter, C. P., et al., J. Ind. Hyg. & Toxicol., 31:343, 1949.
- 5.3 Von Oettingen, W. F., et al., N. I. H Bull. 188, 1947.
- 5.4 Army Chemical Center Report, Project No. 4-16-17-01, June 1949.
- 5.5 Clark, B. C., et al., J. Ind. Hyg. & Toxicol., 25:1, 1943.

TOXICITY DATA SHEET

COMPOUND: ARSENIC ACID, Solid
(Arsenic Pentoxide)

CODE: 006

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	8	LD50	6.2
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	I. V.	6	Lethal	6.1
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

006

Arsenic acid falls within the "Highly Toxic" range and is another form of arsenic pentoxide (As_2O_5).

REFERENCES:

- 6.1 Joachimoglu, G., Biochem. Zschr., 70:144, 1915.
- 6.2 Pesticide Chemicals Official Compendium, p. 63, 1966.

TOXICITY DATA SHEET

COMPOUND: ARSENIC CHLORIDE (Arsenous),
Liquid (Arsenic Trichloride)

CODE: 008

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse(10min)	2500	Lethal	8.1
Dog			
Monkey			
Other			
Cat(1hr)	100	Lethal	8.2
Man	200	Intolerable	8.1

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Particulate solid.
- ** System for expression of toxicity
- ***Dose in mg/Kg

008

JUSTIFICATION:

Arsenic chloride fumes in the presence of air and presents an "Extremely Toxic" inhalation hazard to man and other animal species.

8.1 Flury, F., *Schadliche Gase*, p. 80, 1931.

8.2 Flury, F., *Zschr. Ges. Exptl. Med.* 13:523, 1921.

TOXICITY DATA SHEET

COMPOUND: ARSENIC PENTOXIDE, Solid
(Arsenic Acid)

CODE: 010

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See data sheet 006			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

010

Arsenic pentoxide falls within the "Highly Toxic" range and is another form of arsenic acid (H_3AsO_4), namely the anhydride.

REFERENCES:

See data sheet 006

TOXICITY DATA SHEET

COMPOUND: ARSENIC TRICHLORIDE
(Arsenic Chloride), Liquid

CODE: 013

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse(10 min)	2500	Lethal	13.1
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
Cat(1hr)	100	Lethal	13.2
Man	200	Intolerable	13.1

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³. Particulate solid.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

013

Arsenic trichloride fumes in the presence of air and presents an "Extremely Toxic" inhalation hazard to man and other animal species.

REFERENCES:

- 13.1 Flury, F., *Schadliche Gase*, p. 80, 1931.
- 13.2 Flury, F., *Zschr. Ges. Exptl. Med.*, 13:523, 1921.

TOXICITY DATA SHEET

COMPOUND: ARSENIC TRIOXIDE, Solid

CODE: 014

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	1-2	Lethal	14.1
	15	LD ₅₀	14.4
Rat	8	Lethal	14.3
Mouse	25-47	LD ₅₀	14.4
Dog			
Monkey			
Cat			
Guinea Pig			
Other-Rabbit	4-10	Lethal	14.2

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

014

Experimental toxicity data for species other than man fall in the "Highly Toxic" classification. This category was used since the lethal oral dose for man is estimated and cannot be substantiated. Humans have been reported to have survived larger doses of arsenic trioxide than that suggested as the approximate lethal dose.

REFERENCES:

- 14.1 Vallec, B. L. et al., Arch. Ind. Health, 21:132, 1960.
- 14.2 Joachimoglu, G., Biochem. Zschr., 70:144, 1915.
- 14.3 Hammett, F. S., et al., J. Pharmacol. & Exp. Therap., 19:337, 1922.
- 14.4 Harrison, V. W. E., et al., Arch. Ind. Health, 17:118, 1958.

TOXICITY DATA SHEET

COMPOUND: ARSENIC, WHITE, Solid

CODE: 015

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
XXXX See Data Sheet Number 014			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

015

This is same compound as Arsenic Trioxide, Solid, No. 014.

REFERENCES:

See data sheet 014

TOXICITY DATA SHEET

COMPOUND: ARSENOUS ACID, Solid

CODE: 016

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	See Data Sheet Number 014		

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

016

This is same compound as Arsenic Trioxide, Solid, No. 014.

REFERENCES:

See data sheet 014

TOXICITY DATA SHEET

COMPOUND: BROMACETONE, Liquid

CODE: 020

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man(10min)	3200 (572)	Lethal	20.1
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

020

Based on human toxicity reported for this war gas.

REFERENCES:

20.1 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: BROMBENZYL CYANIDE, Liquid

CODE: 021

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man(30min) 900 (112)		Lethal	21.1
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

021

Based on human toxicity reported for this war gas.

REFERENCES:

- 21.1 Prentiss, A. M., Chemicals in War, p. 147, 1937.

TOXICITY DATA SHEET

COMPOUND: BRUCINE, Solid
(Dimethoxy Strychnine)

CODE: 022

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	77	LD ₅₀	22.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	I. V.	30	Lethal	22.2
2.	Guinea Pig	I. V.	120	Lethal	22.2
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

022

This animal toxicity data falls in the "Toxic" classification.

REFERENCES:

22. 1 Pylkko, O.O. and D.M. Woodbury, J. Pharmacol. & Exptl. Therap.,
131:185, 1961.
22. 2 Busquet, H. and C. Vischniac, Soc. de Biol., 144:53, 1950.

TOXICITY DATA SHEET

COMPOUND: CALCIUM ARSENATE

CODE: 024

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	812	LD ₅₀	
Mouse	794	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 812 mg/kg
95% Confidence Limits (712-924)

Mouse 14-Day LD₅₀ = 794 mg/kg
95% Confidence Limits (665-946)

Data falls in the "Toxic" classification.

TOXICITY DATA SHEET

COMPOUND: CARBOLIC ACID (PHENOL), Liquid
(Liquid tar acid containing over 50%
Benzo-phenol)

CODE: 026

CLASSIFICATION: T O X I C

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	300	MLD	26.3
Mouse	500	Lethal	26.2
Dog			
Monkey			
Cat	80	Lethal	26.1
Guinea Pig			
Other-Rabbit	420	Lethal	26.1
Rat	1500	Lethal	26.1

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS. **	REF.
1. Rabbit	I. V.	180	Lethal	26.1
2. Cat	S. C.	90	Lethal	26.2
3. Rat	S. C.	650	Lethal	26.2
4. Mouse	S. C.	290	Lethal	26.2
5. Rabbit	S. C.	500	Lethal	26.2
6.				

* Concentration in mg/M³

** System for expression of toxicity

*** Dose in mg/Kg

JUSTIFICATION:

026

Experimental toxicity data on animals falls in the "Toxic" classification. Although it has been suggested that a phenol dose of 14 mg/kg may be fatal to man, people have been reported (26. 4) to survive doses as high as 1000 mg/kg and it is most probable that the toxic dose for man is similar to that of other species ranging from 300-500 mg/kg.

REFERENCES:

- 26.1 Deichmann, W. B. and S. Witherup, J. Pharmacol. and Exptl. Therap., 80:233, 1944.
- 26.2 Flury, F., Abderhalden's Hdb., 4.7b:1319.
- 26.3 Goodman, L. and A. J. Geiger, Am. J. Med. Sci., 190:206, 1935.
- 26.4 Deichman, W. B. and Keplinger, M. L., Industrial Hygiene and Toxicology, Vol. II, 1370, 1963.

TOXICITY DATA SHEET

COMPOUND: CARBOLIC ACID (PHENOL), Solid

CODE: 027

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other	See Data Sheet Number 026		

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

027

JUSTIFICATION:

Carbolic Acid, Liquid and Solid, have the same toxicity.

REFERENCES:

See data sheet 026.

TOXICITY DATA SHEET

COMPOUND: CHLORACETOPHENONE, Gas, Liquid
or Solid

CODE: 028

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10min)	850 (134)	Lethal	28.2
Rat(1hr)	222 (35)	LC50	28.1
Mouse(1hr)	4345(est) (685)	LC50	28.1
Dog			
Monkey			
Other			
G. P. (1hr)	210 (33)	LC50	28.1
Man	4.5 (0.7)	Intolerable	28.2
Man(3min)	31 (5)	Intolerable	28.3

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	I. V.	20	LD50	28.1
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

028

The experimental toxicity data for man and other species fall within the "Extremely Toxic" classification. The mouse data which differs is extrapolated beyond the tested points.

REFERENCES:

- 28.1 Punte, C. L. et al., Am. Ind. Hyg. Assoc. J., 23:194, 1962.
- 28.2 Prentiss, A. M., Chemicals in War, 1937.
- 28.3 Punte, C. L. et al., Am. Ind. Hyg. Assoc. J., 23:199, 1962.

TOXICITY DATA SHEET

COMPOUND: CHLOROPICRIN, and nonflammable,
nonliquified compressed gas mixtures
(Nitrochloroform)

CODE: 029

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
Mammals (30min)	5000 (736)	Lethal	29.1
GP(20min)	800 (119)	Lethal	29.2
Rabbit(20min)	800 (119)	Lethal	29.2
Cat(20min)	800 (119)	Lethal	29.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	I. P.	500	Lethal	29.1
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

029

Extrapolation of the CT values for the inhalation toxicity data places this compound in the "Extremely Toxic" classification.

REFERENCES:

- 29.1 Moyer, A. et al., Comptes rendus hebdomadaires des siance de L'Academie des Sciences (Paris), 171:1396, 1920.
- 29.2 Ritlop, B., Zeit fur Gest. Exptl. Med., 106:296, 1939.

TOXICITY DATA SHEET

COMPOUND: CHLOROPICRIN and METHYL
CHLORIDE MIXTURES

CODE: 030

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 029 for Chloropicrin Toxicity			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

030

Based on chloropicrin acute inhalation toxicity which is the most toxic component of this mixture it falls in the "Extremely Toxic" classification.

REFERENCES:

See data sheet 029

TOXICITY DATA SHEET

COMPOUND: COCCULUS, Solid
(Picrotoxin, Fish Berry)

CODE: 031

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse	14.8	LD ₅₀	31.1
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS. **	REF.
1. Mouse	S. C.	4.1	LD ₅₀	31.1
2. Mouse	I. P.	7.2	LD ₅₀	31.1
3. Dog	S. C.	1.5-2.2	Lethal	31.2
4. Rabbit	S. C.	1.3-2.8	Lethal	31.2
5. Guinea Pig	S. C.	0.3-8.0	Lethal	31.2
6. Mouse	S. C.	25	Lethal	31.2

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

031

Oral toxicity data is in "Highly Toxic" category.

REFERENCES:

- 31.1 Setmikar, I. et al., J. Pharmacol. and Exptl. Therap., 128:176, 1960.
- 31.2 Flury, F., Hefftner's Hdb., 4.7b:1385.

TOXICITY DATA SHEET

COMPOUND: COPPER ACETOARSENITE,
(Paris Green)

CODE: 032

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	100	LD50	32.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Rat	Skin	>2,400	LD50	32.1
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

*** Dose in mg/Kg

JUSTIFICATION:

032

Oral toxicity data fall within the "Toxic" classification.

REFERENCES:

32.1 Gaines, T. B., Toxicol. Appl. Pharmacol., 2:88, 1960.

TOXICITY DATA SHEET

COMPOUND: CALCIUM CYANIDE, or Calcium Cyanide Mixtures, Solid

CODE: 034

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	39	ALD ₅₀	34.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

Oral toxicity falls in "Highly Toxic" category.

REFERENCES:

- 34.1 Smyth, H. F. et al., Am. Ind. Hyg. Assoc. J., 30:470, 1969.

TOXICITY DATA SHEET

COMPOUND: CYANIDE of POTASSIUM

CODE: 035

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	10	LD ₅₀	35.3
Mouse			
Dog	3.8-11	Lethal	35.1
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Mouse	S. C.	6	LD ₅₀	35.2
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

035

Although near the borderline, this compound falls within the "Highly Toxic" classification.

REFERENCES:

- 35.1 Gettler, B., Am. J. Med. Sc., 195:182, 1938.
- 35.2 Streicher, E., Proc. Soc. Exptl. Med. & Biol., 76:536, 1951.
- 35.3 Gaines, T. B., Toxicol. and App. Pharmacol., 14:515, 1969.

TOXICITY DATA SHEET

COMPOUND: CYANIDE OF SODIUM, Liquid

CODE: 036

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	15	LD50	36.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Mouse	S. C.	8-14	MLD	36.2
2.	Rabbit	S. C.	2.2	MLD	36.2
3.	Dog	S. C.	6	MLD	36.2
4.	Dog	I. V.	1.3-2.5	Lethal	36.3
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

036

Oral and subcutaneous acute toxicity data fall in "Highly Toxic" range. The toxicity data from the I. V. route of administration are dependent upon rate of infusion becoming more toxic the slower NaCN is infused and are therefore not applicable for use in classification.

REFERENCES:

- 36.1 Smyth, H. F. et al., Am. Ind. Hyg. Assoc. J., 30:476, 1969.
- 36.2 Chen, K. K. et al., J. Am. Med. Assoc., 100:1920, 1933.
- 36.3 Lawrence, W. S., Fed. Proc., 6:349, 1947.

TOXICITY DATA SHEET

COMPOUND: CYANOGEN BROMIDE

CODE: 037

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10 min)	400 (92)	Lethal	37.1
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

037

Classified on basis of human toxicity response. May also be compared with cyanogen chloride data sheet 038 which is "Extremely Toxic."

REFERENCES:

37.1 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: CYANOGEN CHLORIDE
(Containing less than 0.9% Water)

CODE: 038

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
(30min) 300 (118)	LC50	38.5	
Rat (2min) 10,100 (3979)	LC50	38.3	
(30min) 450 (177)	LC50	38.5	
Mouse(7.5min) 780 (307)	Lethal	38.2	
(30 min) 200 (79)	LC50	38.5	
Dog(7.5min) 800 (315)	Lethal	38.2	
Monkey			
Other			
Goat(2min) 1800 (709)	LC50	38.4	
GP(30min) 525 (207)	LC50	38.5	
Rabbit(30min) 525 (207)	LC50	38.5	

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Dog	S. C.	5-40	Lethal	38.2
2.	Rabbit	S. C.	20	Lethal	38.2
3.	Mouse	S. C.	1-2	Lethal	38.2
4.	Rabbit	S. C.	20	Lethal	38.1
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

038

The acute inhalation toxicity data for all species extrapolated to 1 hour fall within the "Extremely Toxic" classification limits.

REFERENCES:

- 38.1 Hunt, R., Hefftner's Hdb., 1.1:799, (A).
- 38.2 Flury, F., Abderhalden's Hdb., 4.7b, 1341.
- 38.3 Fuhr, I. and E. H. Krackow, Army Chemical Center Report T. R. L. R. 27, April, 1944.
- 38.4 McGrath, F. P. et al., Army Chemical Center Report T. R. L. R. 26, March, 1944.
- 38.5 Moore, S. and M. Gates, Chemical Warfare Agents and Related Chemical Problems, Vol. I, pg. 7-16, National Defense Research Center, 1946.

TOXICITY DATA SHEET

COMPOUND: CYANOGEN GAS (CN)₂

CODE: 039

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	16 ppm	Irritant	39.1
Rat (1hr)	745 (350)	LC ₅₀	39.1
Mouse (5 min)	5500 (2585)	Lethal	39.2
Dog			
Monkey			
Other			
Cat	210 (98)	Lethal	39.2
Rabbit	840 (395)	Lethal	39.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

039

Toxicity data falls in "Highly Toxic" category. The nasal and eye irritation caused by this compound could be extremely hazardous for rescue operations.

REFERENCES:

- 39.1 McNerney, J. M. and H. H. Schrenk, Am. Ind. Hyg. Assoc. J., 21:121, 1960.
- 39.2 Flury, F. and F. Zernik, Schadliche Gase, 1931.

TOXICITY DATA SHEET

COMPOUND: DINITROBENZOL, Solid
(Dinitrobenzene)

CODE: 040

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat	27	MFD	40.1
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

040

The only data available falls within the "Highly Toxic" classification. This compound has been shown to produce methemoglobin in man and other species and has been reported to produce many human fatalities (40. 2).

REFERENCES:

- 40.1 White, R. P. and J. Hay, Lancet, 2:582, 1901.
- 40.2 Von Oettingen, W. F., Public Health Bulletin No. 271, 1941.

TOXICITY DATA SHEET

COMPOUND: DINITROCHLOROBENZOL, Solid
(Dinitrochlorobenzene, Chlorodinitrobenzene)

CODE: 041

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	1070	LD50	41.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	Skin	130	LD50	41.1
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

041

Oral toxicity falls with "Toxic" classification.

REFERENCES:

41.1 Smyth, H. F. et al., Am. Ind. Hyg. Assoc. J., 23:95, 1962.

TOXICITY DATA SHEET

COMPOUND: DINITROPHENOL SOLUTIONS

CODE: 042

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	100	Lethal	42.1
Mouse	50	Lethal	42.3
Dog	30	Lethal	42.2
Monkey			
Cat			
Guinea Pig			
Other-Rabbit	200	Lethal	42.3

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Guinea Pig	Skin	700	Lethal	42.1
2.	Dog	S. C.	25	Lethal	42.2
3.	Rabbit	S. C.	30	Lethal	42.2
4.	Dog	S. C.	50	Lethal	42.3
5.	Dog	I. V.	30	Lethal	42.3
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

042

The data fall within the "Highly Toxic" classification.

REFERENCES:

- 42.1 Spencer, H. C. et al., J. Ind. Hyg. & Toxicol., 30:10, 1948.
- 42.2 Tainter, M. L. and W. C. Cutting, J. Pharmacol. & Exptl. Therap.,
49:187, 1933.
- 42.3 Magne, H. et al., Am. de Physiol. et de Physico. Biol., 7:1, 1932.

TOXICITY DATA SHEET

COMPOUND: DIPHENYLAMINECHLORARSINE),
Gas, Liquid or Solid, (adamsite)

CODE: 043

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(30min)	650 (54)	Lethal	43.3
Rat(1hr)	222 (18)	LC50	43.1
Mouse(1hr)	1340 (111)	LC50	43.1
Dog			
Monkey			
Other			
GP(1hr)	475 (39)	LC50	43.1
Man(3min)	6 (.05)	Intolerable	43.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	I. V.	6	LD50	43.1
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Inhalation toxicity data for most species fall in "Extremely Toxic" classification.

REFERENCES:

- 43.1 Punte, C.L. et al., Am. Ind. Hyg. Assoc. J., 23:194, 1962.
- 43.2 Punte, C.L. et al., Am. Ind. Hyg. Assoc. J., 23:199, 1962.
- 43.3 Prentiss, A.M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: DIPHENYLCHLORARSINE, Solid
(Sneezing Gas)

CODE: 044

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(30min)	600 (55)	Lethal	44.1
Rat			
Mouse			
Dog(50min)	340 (31)	Lethal	44.2
Monkey			
Other			
Cat(24min)	70 (6)	Lethal	44.2

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Cat	I. V.	0.5	Lethal	44.2
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Dust. Parenthetical values are PPM.

** System for expression of toxicity

*** Dose in mg/Kg

JUSTIFICATION:

044

Inhalation data for respirable dust fall in the "Extremely Toxic" classification.

REFERENCES:

44.1 Prentiss, A. M., Chemicals in War, 1937.

44.2 Flury, F., Zeit. fur Gesamte. Exper. Med., 13:550, 1921.

TOXICITY DATA SHEET

COMPOUND: ETHYLDICHLOROARSINE

CODE: 045

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man(30min)	100 (14)	Lethal	45.2
Rat			
Mouse(15min)	504 (70)	Lethal	45.1
Dog(20min)	675 (94)	Lethal	45.1
Monkey			
Other			
Cat(40min)	83 (12)	Lethal	45.1

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Cat	I. V.	1	Lethal	45.1
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

045

Data all fall in the "Extremely Toxic" classification.

REFERENCES:

- 45.1 Flury, F., Zeit. fur Gesamte Exp. Med., 13:541, 1921.
- 45.2 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: HEXAETHYL TETRAPHOSPHATE

CODE: 049

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	7	LD ₅₀	49.1
Rat	5	ALD	49.3
Mouse	56	LD ₅₀	49.1
Dog			
Monkey			
Cat			
Guinea Pig	16	LD ₅₀	49.1
Other-Rabbit	21	LD ₅₀	49.1

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Dog	I. V.	1.3	Lethal	49.2
2.	Dog	I. M.	1.5	Lethal	49.2
3.	Rabbit	I. V.	0.7	LD ₅₀	49.1
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

049

The oral toxicity for most species falls in the "Highly Toxic" classification.

REFERENCES:

- 49.1 Hagan, E. C. and G. Woodard, Fed. Proc., 6:335, 1947.
- 49.2 Dayrit, C. et al., J. Pharmacol. Exptl. Therap., 92:173, 1948.
- 49.3 Deichman, W. B. and S. Witherup, Fed. Proc., 6:322, 1947.

TOXICITY DATA SHEET

COMPOUND: HYDROCYANIC ACID, Liquified
(Hydrogen Cyanide)

CODE: 050

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat(5min)	600 (544)	LC ₅₀	50.2
Mouse(30min)	187 (169)	LC ₅₀	50.2
Dog(3min)	330 (300)	LC ₅₀	50.2
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog	4	Lethal	50.1
Monkey			
Cat	2-4	Lethal	50.1
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS. **	REF.
1. Dog	S. C.	1.7	Lethal	50.1
2. Cat	S. C.	1.1	Lethal	50.1
3. Rabbit	S. C.	1.1-3.0	Lethal	50.1
4. G. P.	S. C.	0.1	Lethal	50.1
5.				
6.				

- * Concentration in mg/M³. Parenthetical values are PPM.
 ** System for expression of toxicity
 *** Dose in mg/Kg

JUSTIFICATION:

Oral and inhalation toxicity data fall within the "Extremely Toxic" classification.

REFERENCES:

- 50.1 Flury, F. and F. Zernik, Abderhalden's Hdb., 4.7b:1340.
- 50.2 Moore, S. and M. Gates, Summary Technical Report of Division 9, N. D. R.
Vol. I, 1946.

TOXICITY DATA SHEET

COMPOUND: LEAD ARSENATE

CODE: 051

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	825 1050	LD50 LD50	51.1 51.3
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other-Rabbit	125	LD50	51.1
Rat	100	ALD	51.2

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	Skin	>2400	LD50	51.3
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

051

Rat oral and dermal toxicity data fall in the "Toxic" category.

REFERENCES:

- 51.1 Voight, J. L., et al., J. Am. Pharm. Assoc., 37:122, 1948.
- 51.2 Lehman, A. J., Quart. Bull. Assoc. Food & Drug Off., 15:122, 1951.
- 51.3 Gaines, T. B., Toxicol & Appl. Pharmacol., 2:88, 1960.

TOXICITY DATA SHEET

COMPOUND: LEWISITE (Beta-Chlorovinylchloroarsine) CODE: 053

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man(30min)	48 (6)	Lethal	53.1
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Man	Skin	0.04 (est)	Lethal	53.2
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

053

Based on human dermal and inhalation toxicity, Lewisite falls in the "Extremely Toxic" classification.

REFERENCES:

- 53.1 Prentiss, A. M., Chemicals in War, 1937.
- 53.2 Sollmann, T., A Manual of Pharmacology, p. 192, 1957.

TOXICITY DATA SHEET

COMPOUND: MAGNESIUM ARSENATE, Solid

CODE: 055

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	280	ALD	55.1
Mouse	315	LD50	55.2
Dog			
Monkey			
Cat			
Guinea Pig			
Other-Rabbit	80	ALD	55.1

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	Skin	2100	ALD	55.1
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

055

Oral toxicity data fall in "Toxic" category.

REFERENCES:

- 55.1 Keplinger, M.L., Am. Ind. Hyg. Assoc. J., 19:504, 1958.
- 55.2 Bunemann, G. and W. Klosterkotter, Arch. fur Gewerberpath. und
Gewerbhyg., 20:21, 1963.

TOXICITY DATA SHEET

COMPOUND: MERCURIC ACETATE

CODE: 056

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	76	LD ₅₀	
Mouse	62	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 76 mg/kg
95% Confidence Limits (55-105)

Mouse 14-Day LD₅₀ = 62 mg/kg
95% Confidence Limits (41-92)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: MERCURIC CYANIDE

CODE: 060

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	26	LD ₅₀	
Mouse	33	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

06

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 26 mg/kg
95% Confidence Limits (15-46)

Mouse 14-Day LD₅₀ = 33 mg/kg
95% Confidence Limits (22-49)

Data fall in the "Highly Toxic" category.

TOXICITY DATA SHEET

COMPOUND: MERCURIC IODIDE

CODE: 061

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	40	LD ₅₀	61.1
Mouse	80	LD ₅₀	61.1
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Mouse	I. P.	60	LD ₅₀	61.1
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

00

Rat oral toxicity data fall in the "Highly Toxic" category.

REFERENCES:

61.1 Gothe, C. J. and L. Sundell, Arch. fur Toxikol., 20:226, 1964.

TOXICITY DATA SHEET

COMPOUND: MERCURIC OXIDE (YELLOW), SOLID

CODE: 064

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	<u>18</u>	<u>LD50</u>	_____
Mouse	<u>22</u>	<u>LD50</u>	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 18 mg/kg
95% Confidence Limits (7-44)

Mouse 14-Day LD₅₀ = 22 mg/kg
95% Confidence Limits (10-48)

Data fall in the "Highly Toxic" category.

TOXICITY DATA SHEET

COMPOUND: MERCURIC SULFATE, SOLID

CODE: 070

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	57	LD ₅₀	
Mouse	40	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

070

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 57 mg/kg
95% Confidence Limits (27-120)

Mouse 14-Day LD_{50} = 40 mg/kg
95% Confidence Limits (30-50)

Rat data fall in the "Toxic" category. However, this is a borderline case and the mouse data are within the "Highly Toxic" classification which has been assigned to this commodity as an overall evaluation.

TOXICITY DATA SHEET

COMPOUND: MERCUROUS IODIDE

CODE: 075

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	>310	LD ₅₀	75.1
Mouse	110	LD ₅₀	75.1
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Mouse	I. P.	50	LD ₅₀	75.1
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

075

Oral toxicity data fall within the "Toxic" classification.

REFERENCES:

75.1 Gothe, C. J. and L. Sundell, Arch. f. Toxikol., 20:226, 1964.

TOXICITY DATA SHEET

COMPOUND: MERCUROUS NITRATE

CODE: 076

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	297	LD ₅₀	
Mouse	388	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

076

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 297 mg/kg
95% Confidence Limits (248-362)

Mouse 14-Day LD₅₀ = 388 mg/kg
95% Confidence Limits (290-530)

Data fall within the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: MERCURY BICHLORIDE, Solid
(Mercuric Chloride)

CODE: 080

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	37	ALD ₅₀	80.4
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS. **	REF.
1. Rabbit	S. C.	10	ALD	80.1
2. Dog	S. C.	10	ALD	80.1
3. Mouse	S. C.	23	LD ₅₀	80.2
4. Mouse	I. V.	7.6	LD ₅₀	80.3
5.				
6.				

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

08C

All data fall within the "Highly Toxic" range.

REFERENCES:

- 80.1 Hesse, E., Arch. f. Exp. Path. in Pharmacol., 117:226, 1926.
- 80.2 Wien, R., Quart. J. Pharmacy and Pharmacol., 12:221, 1939.
- 80.3 Lehman, R. A., et al., J. Pharmacol. Exptl. Therap., 99:149, 1950.
- 80.4 Lehman, A. J., Quart. Bull. Assoc. Food & Drug Off., 15:122, 1951.

TOXICITY DATA SHEET

COMPOUND: METHYL BROMIDE and
CHLOROPICRIN MIXTURE, Liquid

CODE: 083

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet Number 029 for Chloropicrin Toxicity.			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

083

Based on chloropicrin acute toxicity which is the most toxic component of the mixture, it falls in the "Extremely Toxic" classification.

REFERENCES:

See data sheets 029 and 030.

TOXICITY DATA SHEET

COMPOUND: METHYL BROMIDE and ETHYLENE
DIBROMIDE MIXTURES
(Data for Ethylene Dibromide)

CODE: 084

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat (1hr)	5300 (689)	LD ₅₀	84.1
Mouse			
Dog			
Monkey			
Other			
GP(3hr)	3000 (390)	ALC ₅₀	84.1
See Data Sheet Number 085, Methyl Bromide Toxicity Data.			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	146	LD ₅₀	84.1
Mouse	420	LD ₅₀	84.1
Dog			
Monkey			
Cat			
Guinea Pig	110	LD ₅₀	84.1
Other-Rabbit	55	LD ₅₀	84.1

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	Skin	300	ALD ₅₀	84.1
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical values are PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

084

Both the compounds of this mixture fall in the "Toxic" classification and, even if additive toxic effects are postulated, the mixture would still be in the same category.

REFERENCES:

84.1 Rowe, V. K., et al, Arch. Ind. Hyg. and Occup. Med. 6:158, 1952.

Note - See Data Sheet 085 for Methyl Bromide Toxicity.

TOXICITY DATA SHEET

COMPOUND: METHYL BROMIDE, Liquid
(Bromomethane)

CODE: 085

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat (1hr)	9000 (2312)	LC ₁₀₀	85.1
Mouse			
Dog			
Monkey			
Other			
Rabbit (1hr)	25,000 (6425)	LC ₁₀₀	85.1
G. P. (1hr)	17,500 (4498)	ALC	85.2

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical values are PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

08

Acute inhalation toxicity data fall in the "Toxic" classification.

REFERENCES:

- 85.1 Irish, D. D. et al., J. Ind. Hyg. & Toxicol., 22:218, 1940.
- 85.2 Sayers, R. R. et al., Public Health Bull., 185, 1929.

TOXICITY DATA SHEET

COMPOUND: METHYL PARATHION

CODE: 086

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	<u>15.2</u> <u>14-24</u>	<u>ALD50</u> <u>LD50</u>	<u>85.4</u> <u>86.1</u>
Mouse	<u>100-200</u>	<u>LD50</u>	<u>86.2</u>
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other-Rabbit	<u>420</u>	<u>Lethal</u>	<u>86.3</u>

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Rat	Skin	67	LD50	86.1
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

086

Based on rat oral and dermal toxicity, methyl parathion is "Highly Toxic."

REFERENCES:

- 86.1 Gaines, T. B., Toxicol. Appl. Pharmacol., 2:88, 1960.
- 86.2 Metcalf, R. L. and R. B. March, J. Econ. Ento., 46:288, 1953.
- 86.3 Deichmann, W. B. et al., Arch. Ind. Hyg. Occ. Med., 5:44, 1952.
- 86.4 Lehman, A. J., Quart. Bull. Assoc. Food and Drug Off., 15:122, 1951.

TOXICITY DATA SHEET

COMPOUND: MONOCHLORACETONE, STABILIZED
(1-Chloro-2-Propanone)

CODE: 087

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man(10min)	2300 (605)	Lethal	87.1
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical value is PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

World War I experience indicates that a 10 minute exposure to 2300 mg/M³ is lethal to man, and therefore, the extrapolated 1 hour lethal dose falls within the "Extremely Toxic" classification.

REFERENCES:

- 87.1 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: MUSTARD GAS

CODE: 085

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10min)	150 (23)	Lethal	88.2
Rat			
Mouse			
Dog(5min)	500 (77)	Lethal	88.3
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Dog	I. M.	14	Lethal	88.1
2.	Mouse	I. V.	8.6	LD50	88.4
3.	Rat	I. V.	3.3	LD50	88.4
4.	Mouse	Skin	92	LD50	88.4
5.	Rat	Skin	18	ALD	88.4
6.					

* Concentration in mg/M³. Parenthetical values are FPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

088

Based on inhalation toxicity data and other allied values, mustard gas falls in the "Extremely Toxic" classification.

REFERENCES:

- 88.1 Lynch, V. et al., J. Pharmacol. Expt. Therap., 12:265, 1920.
- 88.2 Prentiss, A. M., Chemicals In War, 1937.
- 88.3 Marshall, E. K., J. Am. Med. Assoc. 73:684, 1919.
- 88.4 Anslow, W. P. et al., J. Pharmacol. Exptl. Therap., 93:1, 1948.

TOXICITY DATA SHEET

COMPOUND: NICOTINE HYDROCHLORIDE

CODE: 090

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	<u>1(est.)</u>	<u>Lethal</u>	<u>90.3</u>
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Rat	I. P.	20-24	MLD	90.1
2.	Guinea Pig	I. P.	32	MLD	90.1
3.	Rabbit	I. V.	6.5	MLD	90.2
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

09

As in the case of nicotine, it appears that humans are more susceptible because of demonstrated effects of extremely low doses on the CNS and autonomic nervous system. The estimated minimum lethal dose of 1 mg/Kg makes this compound "Extremely Toxic."

REFERENCES:

- 90.1 Hicks, C. and D. Sinclair, *Austra. J. Expt. Biol. Med. Sci.*, 25:83, 19
- 90.2 Larson, P. S., *J. Pharmacol. Exptl. Therap.*, 77:343, 1943.
- 90.3 Goodman, L. S. and A. Gilman, Pharmacological Basis of Therapeutics
p. 590, 1970.

TOXICITY DATA SHEET

COMPOUND: NICOTINE

CODE: 091

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	1(est)	Lethal	91.1
Rat	50	ALD	91.5
Mouse	24	MLD	91.2
Dog	9.2-10.3	ALD ₅₀	91.4
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Mouse	S. C.	16	MLD	91.2
2.	Dog	I. V.	5	LD ₅₀	91.3
3.	Cat	I. V.	2	LD ₅₀	91.3
4.	Rabbit	I. V.	9.4	LD ₅₀	91.3
5.	Mouse	I. V.	7.1	LD ₅₀	91.3
6.	Rabbit	Skin	50	LD ₅₀	91.6

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

05

It appears that humans are more susceptible because of demonstrated effects at extremely low doses on the CNS and autonomic nervous system. The estimated minimum lethal dose of 1 mg/kg makes this compound "Extremely Toxic."

REFERENCES:

- 91.1 Lehman, A. J., Quart. Bull. Assoc. Food & Drug Off., 13:65, 1949.
- 91.2 Huebner, W. and J. Papierkowski, Arch. f. Exp. Path. u. Pharmacol., 188:605, 1938.
- 91.3 Larson, P. S. et al., J. Pharmacol. Exptl. Therap., 95:506, 1949.
- 91.4 Franke, F. E. and J. E. Thomas, Proc. Soc. Exp. Biol. Med., 29:117, 1932.
- 91.5 Lehman, A. J., Quart. Bull. Assoc. Food & Drug Off., 15:122, 1951.
- 91.6 Lehman, A. J., Quart. Bull. Assoc. Food & Drug Off., 16:3, 1952.

TOXICITY DATA SHEET

COMPOUND: NICOTINE SULFATE, LIQUID

CODE: 093

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	75	LD ₅₀	
Mouse	16	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

0

Data generated under contract between the Department of Transportation and the
United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 75 mg/kg
95% Confidence Limits (44-127)

Mouse 14-Day LD_{50} = 16 mg/kg
95% Confidence Limits (12-21)

Data fall within the "Highly Toxic" category.

TOXICITY DATA SHEET

COMPOUND: NICOTINE TARTRATE

CODE: 094

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse	28	MLD	94.1
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Mouse	S.C.	19	MLD	94.1
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

094

If the MLD's had been expressed as free nicotine base, this compound would be equally as toxic as the other nicotine compounds.

REFERENCES:

- 94.1 Huebner, W. and J. Papierkowski, Arch. f. Exp. Path. u. Pharmacol.,
188:605, 1938.

TOXICITY DATA SHEET

COMPOUND: NITRIC OXIDE

CODE: 095

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet Number 099, Nitrogen Dioxide			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

This compound is not highly toxic per se but is rapidly converted in air to nitrogen dioxide which is "Extremely Toxic."

REFERENCES:

See data sheet 099.

TOXICITY DATA SHEET

COMPOUND: NITROBENZOL
(Oil of Mirbane, Nitrobenzene)

CODE: 096

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog	750	Lethal	96.2
Monkey			
Cat			
Guinea Pig			
Other-Rabbit	600	Lethal	96.2

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Mouse	S. C.	480	MILD	96.1
2.	Rat	S. C.	800	Lethal	96.2
3.	Rabbit	Skin	600	Lethal	96.2
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

096

All available data falls in the "Toxic" classification.

REFERENCES:

96.1 Shimkin, M. B., Proc. Soc. Exptl. Biol. Med., 42:844, 1939.

96.2 Flury, F., Abderhalden's Hdb., 4. 7b, 1375.

TOXICITY DATA SHEET

COMPOUND: NITROGEN DIOXIDE
(Nitrogen Peroxide)

CODE: 099

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	216 (115)	LC ₅₀	99.2
Rat(1hr)	326 (173)	LC ₅₀	99.1
Mouse			
Dog			
Monkey(6hr)	83 (44)	LC ₁₀₀	99.3
Other			
Rabbit(15min)	592 (315)	LC ₅₀	99.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical values are PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

099

Based on the acute inhalation toxicity, this compound is considered "Extremely Toxic."

REFERENCES:

- 00.1 Gray, E. L., et al., Arch. Ind. Hyg. Occ. Med., 10:418, 1954.
- 00.2 Carson, T. R., et al., Arch. Ind. Hyg. Assoc. J., 23: 457, 1962.
- 00.3 McNerney, J. M., Proc. Conference on Atmospheric Contamination in Confined Spaces, AMRL-TR-65-230, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, March, 1965.

TOXICITY DATA SHEET

COMPOUND: NITROGEN PEROXIDE
(Nitrogen Dioxide)

CODE: 100

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet Number 099, Nitrogen Dioxide			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

100

See data sheet 099.

REFERENCES:

See data sheet 099.

TOXICITY DATA SHEET

COMPOUND: NITROGEN TETROXIDE

CODE: 101

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet Number 099, Nitrogen Dioxide			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

101

Nitrogen tetroxide is a dimer of nitrogen dioxide and the relative concentrations of each compound in the mixture are the same no matter which pure compound is the starting material.

REFERENCES:

See data sheet 099.

TOXICITY DATA SHEET

COMPOUND: NITROGEN TETROXIDE, Nitric Oxide
Mixtures (Containing up to 33.2% by weight
of nitric oxide)

CODE: 102

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet Number 099, Nitrogen Dioxide			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

102

In the presence of air, the nitric oxide component would be rapidly converted to nitrogen dioxide - nitrogen tetroxide and have the toxicity of this substance.

REFERENCES:

See data sheet 099.

TOXICITY DATA SHEET

COMPOUND: ORTHO-NITROANILINE

CODE: 103

CLASSIFICATION: TOXIC

INITIALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	3564	LD ₅₀	_____
Mouse	1288	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

10

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 3564 mg/kg
95% Confidence Limits (2590-4910)

Mouse 14-Day LD₅₀ = 1288 mg/kg
95% Confidence Limits (1131-1467)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: PARATHION and Compressed
Gas Mixtures

CODE: 105

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	1.4	Est.	
	3-6	LD ₅₀	105.6
Rat	4-13	LD ₅₀	105.5
	5-30	LD ₅₀	105.3
	3	ALD ₅₀	105.7
Dog			
Monkey			
Cat			
Guinea Pig	32	LD ₅₀	105.3
Mouse	25	LD ₅₀	105.3

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Rat	I. M.	10-41	LD ₅₀	105.1
2.	Rat	I. P.	5.5	LD ₅₀	105.2
3.	Rabbit	Skin	150-420	ALD	105.4
4.	Rat	Skin	7-21	LD ₅₀	105.5
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

105

Although the data are somewhat conflicting, a large number of well-planned studies has shown that parathion acute, oral, and dermal toxicity values fall in the "Extremely Toxic" range. Furthermore, the estimated lethal dose for man falls in the "Extremely Toxic" category.

REFERENCES:

- 105.1 Swann, H. E., Am. Ind. Hyg. Assoc. J., 19:190, 1958.
- 105.2 DuBois, K. P. and J. M. Coon, Arch. Ind. Hyg. Occ. Med., 6:9, 1952.
- 105.3 Frawley, J. P. et al., J. Pharmacol. Exptl. Therap., 105:156, 1952.
- 105.4 Deichmann, W. B. et al., Arch. Ind. Hyg. Occ. Med., 5:44, 1952.
- 105.5 Gaines, T. B., Toxicol. Appl. Pharmacol., 14:515, 1969.
- 105.6 Edson, E. F. and D. N. Neakes, Toxicol. Appl. Pharmacol., 2:523, 1964.
- 105.7 Lehman, A. J., Q. Bull. Assoc. Food & Drug Off., 15:122, 1951.

TOXICITY DATA SHEET

COMPCUND: PARIS GREEN, Solid
(Copper Acetoarsenite)

CODE: 106

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	100	LD ₅₀	106.1
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	Skin	>2400	LD ₅₀	106.1
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

106

Oral and dermal toxicity data fall within the "Toxic" classification.

REFERENCES:

106.1 Gaines, T. R., Toxicol. Appl. Pharmacol., 2:88, 1960.

A-133

TOXICITY DATA SHEET

COMPOUND: PERCHLOROMETHYL MERCAPTAN

CODE: 107

CLASSIFICATION: EXTREMELY TOXIC

INITIALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10min)	3000 (483)	Lethal	107.2
Rat			
Mouse(15min)	360 (58)	Lethal	107.1
Dog			
Monkey			
Other			
Cat(15min)	360 (58)	Lethal	107.1

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

107

This compound falls in the "Extremely Toxic" classification.

REFERENCES:

107.1 Flury, F. and F. Zeinik, Schadliche Gase, 362, 1931.

107.2 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: PHENYLCARBYLAMINE CHLORIDE

CODE: 108

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10min) 50 (7)			108.1
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical value is PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

108

The acute inhalation toxicity value for this deep lung irritant falls within the "Extremely Toxic" classification.

REFERENCES:

108.1 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: PHENYLDICHLOROARSINE

CODE: 109

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10min)	260 (28)	Lethal	109.1
Rat			
Mouse			
Dog			
Monkey			
Other GP (10min)	370 (41)	M.L.C	109.2

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Rabbit	Skin	8.7	Lethal	109.2
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical values are PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

The inhalation and dermal toxicity data fall within the "Extremely Toxic" classification

REFERENCES:

- 109.1 Prentiss, A. M. Chemicals in War, 1937.
- 109.2 Dudley, H. C., Pub. Health Rept., 53:338, 1938.

TOXICITY DATA SHEET

COMPOUND: PHOSGENE (CARBONYL CHLORIDE)

CODE: 110

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat(30min)	300 (75)	LC ₅₀	110.3
Mouse(30min)	445 (110)	LC ₅₀	110.3
	710 (175)	Lethal	110.2
Dog(30min)	320 (79)	Lethal	110.1
Monkey(1min)	4400 (1087)	LC ₅₀	110.3
Other			
Cat(1min)	6000 (1482)	LC ₅₀	110.3
Rabbit(1min)	13000 (3211)	LC ₅₀	110.3
GP(30min)	570 (141)	LC ₅₀	110.3

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical values are PPM.
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

110

Inhalation toxicity data fall in the "Extremely Toxic" classification.

REFERENCES:

- 110.1 Meek, W. J. and J. A. E. Eyster, Am. J. Physiol., 51:303, 1920.
- 110.2 Tobias, J. M. et al., Am. J. Physiol., 158:173, 1949.
- 110.3 Moore, S. and M. Gates, Summary Tech. Rept. of Division 9, NDRC, Vol 1, 1946.

TOXICITY DATA SHEET

COMPCUND: POTASSIUM ARSENITE

CODE: 113

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	14	ALD ₅₀	113.1
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

113

Rat oral toxicity data falls in the "Highly Toxic" classification.

REFERENCES:

113.1 Lehman, A. J., Q. Bull. Assoc. Food & Drug Off., 15:122, 1951.

TOXICITY DATA SHEET

COMPOUND: SODIUM ARSENITE

CODE: 115

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	41	LD ₅₀	115.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Mouse	S. C.	10-12	LD ₅₀	115.2
2.	Rat	I. P.	4	MLD	115.3
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

115

Data fall within "Highly Toxic" classification.

REFERENCES:

- 115.1 Smyth, H. F. et al., Am. Ind. Hyg. Assoc. J., 30:470, 1969.
- 115.2 Beck, H., Proc. Soc. Expt. Biol. Med., 78:392, 1951.
- 115.3 Franke, K. W. and A. L. Moxon, J. Pharm. Expt. Therap., 58:454, 1936.

TOXICITY DATA SHEET

COMPOUND: SODIUM AZIDE

CODE: 116

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	42	ALD	116.1
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	I. P.	30	Lethal	116.1
2.	Rat	S. C.	35	ALD	116.1
3.	Mouse	I. P.	37.4	LD50	116.2
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

116

Data falls within "Highly Toxic" classification.

REFERENCES:

- 116.1 Fairhall, L. T. et al., Pub. Health Rept., 58:607, 1943.
- 116.2 Roth, F. E. et al., Arch. Int. Pharmacodyn & Therap., 108:473, 1956.

TOXICITY DATA SHEET

COMPOUND: STRYCHNINE and SALTS THEREOF

CODE: 119

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	5	MILD	119.5
Rat (as nitrate)	16.2	LD ₅₀	119.1
Mouse			
Dog	0.3-0.4	LD	119.6
Monkey			
Cat	0.75	LD	119.6
Guinea Pig			
Other-Rabbit	0.6	LD	119.6

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1. Rat (as sulfate)	I. P.	2.5	LD ₅₀	119.2
2. Mouse	S. C.	0.85	LD ₅₀	119.3
3. Mouse	I. P.	0.98	LD ₅₀	119.3
4. Rat	S. C.	1.7	LD ₅₀	119.4
5. Rat	I. P.	2.9	LD ₅₀	119.4
6.				

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

119

Oral toxicity data places this compound in the "Extremely Toxic" category.

REFERENCES:

- 119.1 Lehman, A.J., Q. J. Pharmacol., 19, 22, 1967.
- 119.2 Tilko, O.O. and D. J. Goldberger, J. Pharmacol. Expt. Ther., 151, 5, 1961.
- 119.3 Semikar, I. et al., J. Pharmacol. Expt. Ther., 125, 176, 1960.
- 119.4 Goldenthal, E. L., Toxicol. Appl. Pharmacol., 18, 185, 1971.
- 119.5 V. V. Goldenthal, Arch. Expt. Path. Pharm., 201, 161, 1943.
- 119.6 Goldenthal, E. L., J. Pharmacol. Expt. Ther., 4, 7b, 1403.

TOXICITY DATA SHEET

COMPOUND **TETRAETHYL DITHIOPYROPHOSPHATE, LIQUID** CODE: **120**

CLASSIFICATION: **EXTREMELY TOXIC**

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	5	LD₅₀	120.1
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Mouse	S. C.	8	LD	120.2
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

120

Oral toxicity data fall in "Extremely Toxic" classification.

REFERENCES:

120.1 Metcalf, R. L., Organic Insecticides, 1955.

120.2 Toy, A. D. F., J. A. C. S., 73:4670, 1951.

TOXICITY DATA SHEET

COMPOUND: TETRAETHYL DITHIOPYROPHOSPHATE
MIXTURES, DRY OR LIQUID

CODE: 121

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet No. 120			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

See data sheet 120.

REFERENCES:

See data sheet 120.

TOXICITY DATA SHEET

COMPOUND: TETRAETHYL LEAD

CODE: 122

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat(60min)	770 (58)	ALC	122.2
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	24	Lethal	122.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	I.V.	31	Lethal	122.2
2.	Dog	Skin	500	Lethal	122.3
3.	Guinea Pig	Skin	990	Lethal	122.3
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical value is PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

122

Oral and inhalation data fall in "Highly Toxic" category.

REFERENCES:

- 122.1 Springman, F. et al., Arch. Environ. Health, 6:469, 1963.
- 122.2 Cremer, J. E. and S. Calloway, Brit. J. Indust. Med., 18:277, 1961.
- 122.3 Eldridge, W. A., Report 29, Chem. Warfare, Inc., 1929.

TOXICITY DATA SHEET

COMPOUND: TETRAETHYLPYROPHOSPHATE
AND COMPRESSED GAS MIXTURES

CODE: 123

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	1.2 1.2-2	LD ₅₀ LD ₅₀	123.3 123.1
Mouse	7.0	LD ₅₀	123.1
Dog			
Monkey			
Cat			
Guinea Pig	2.3	LD ₅₀	123.1
Other-Rat	1.05	LD ₅₀	123.4

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Rat	I. P.	0.65	LD ₅₀	123.2
2.	Mouse	I. P.	0.85	LD ₅₀	123.2
3.	Rat	Skin	2.4	LD ₅₀	123.4
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

123

Data all fall in "Extremely Toxic" classification.

REFERENCES:

- 123.1 Frawley, J. P. et al., J. Pharm. Expt. Therap., 105:156, 1952.
- 123.2 Mangun, G. H. and K. P. Dufkols, Fed. Proc., 6:353, 1947.
- 123.3 Lehman, A. J., Q. Bull. Assoc. Food & Drug Off., 15:122, 1951.
- 123.4 Gaines, T. R., Toxicol. Appl. Pharmacol., 14:515, 1969.

TOXICITY DATA SHEET

COMPOUND: TETRAETHYL PYROPHOSPHATE
MIXTURE, DRY

CODE: 124

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 123			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

See data sheet 123.

REFERENCES:

See data sheet 123.

TOXICITY DATA SHEET

COMPOUND: THALLIUM SULFATE

CODE: 125

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	25 15.8	LD ₅₀ LD ₅₀	123.2 125.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

125

Oral toxicity data fall in "Highly Toxic" category.

REFERENCES:

125.1 Dicke, S.H. and C. P. Richter. Pub. Health Rpt. 61, 672, 1946.

125.2 Lehman, A. J., Q. Bull. Assoc. Food & Drug Off., 15, 122, 1951.

TOXICITY DATA SHEET

COMPOUND: XYLYL BROMIDE

CODE: 127

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10min)	5600 (75)	Lethal	127.1
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical value is PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

127

The extrapolated lethal concentration falls in the "Highly Toxic" range.

REFERENCES:

- 127.1 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: ACROLEIN (Acrylaldehyde)

CODE: 131

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(10min)	350 (153)	Lethal	131.4
Rat(4hr)	20 (8)	ALC50	131.2
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	46	LD50	131.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	S. C.	300	Lethal	131.3
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

131

Extrapolated 1 hour inhalation toxicity falls in "Extremely Toxic" category.

REFERENCES:

- 131.1 Smyth, H. F. et al., Arch. Ind. Hyg. Occ. Med., 4:119, 1951.
- 131.2 Carpenter, C. P. et al., J. Ind. Hyg. Toxicol., 31:343, 1949.
- 131.3 Lewin, L., Arch. Exptl. Path. Pharm., 43:351, 1900.
- 131.4 Prentiss, A. M., Chemicals in War, 1937.

TOXICITY DATA SHEET

COMPOUND: ACRYLONITRILE

CODE: 132

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
(1hr)	3230 (1489)	Lethal	132.2
Rat(4hr)	2170 (1000)	LC ₁₀₀	132.1
(4hr)	680 (313)	ALC ₅₀	132.2
Mouse(1hr)	1700 (784)	LC ₁₀₀	132.4
Dog(4hr)	240 (110)	Lethal	132.2
Monkey			
Other			
GP(4hr)	1250 (576)	ALC ₅₀	132.2
Rabbit(4hr)	560 (258)	Lethal	132.2
Cat(4hr)	1300 (600)	Lethal	132.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	93	LD ₅₀	132.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS. **	REF.
1. Rabbit	Skin	250	LD ₅₀	132.1
2. Rat	S. C.	95.8	MLD	132.3
3. Mouse	I. P.	15	ALD	132.4
4.				
5.				
6.				

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

132

The bulk of the data falls in the "Toxic" category.

REFERENCES:

- 132.1 Smyth, H. F. and C. P. Carpenter, J. Ind. Hyg. Tox., 30:63, 1948.
- 132.2 Dudley, H. C. and P. A. Neal, J. Ind. Hyg. Tox., 24:27, 1942.
- 132.3 Magos, L., Brit. J. Ind. Med., 19:283, 1962.
- 132.4 McOmie, W. A., J. Ind. Hyg. Tox., 31:113, 1949.

TOXICITY DATA SHEET

COMPOUND: ALLYL CHLORIDE
(3-Chloropropene)

CODE: 133

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat(1hr)	55,000 (17,500)	ALC ₁₀₀	133.1
Mouse			
Dog			
Monkey			
Other-GP	20,000 (6,360)	ALC ₁₀₀	133.1

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	700	ALD ₅₀	133.2
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	Skin	2050	ALD ₅₀	133.2
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

133

All data falls within "Toxic" range.

REFERENCES:

- 133.1 Adams, E. M. et al., J. Ind. Hyg. Tox., 22:79, 1940.
- 133.2 Smyth, H. F. and C. P. Carpenter, J. Ind. Hyg. Tox., 30:63, 1948.

TOXICITY DATA SHEET

COMPOUND: ALUMINUM FERROSILICON
(Data are for Phosphine and Arsine -
See Data Sheet Number 168)

CODE: 134

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet Number 168			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³
** System for expression of toxicity
*** Dose in mg/Kg

JUSTIFICATION:

134

See data sheet 168.

REFERENCES:

See data sheet 168.

TOXICITY DATA SHEET

COMPOUND: AMMONIA

CODE: 135

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
	5100 (7338)	LC ₅₀	
Rat (4hr)	1400 (2013)	ALC ₅₀	135. 3
	3360 (4837)	LC ₅₀	
Mouse (10min)	7060	LC ₅₀	135. 1
	(10158)		
Dog			
Monkey			
Other			
Cat (1hr)	7000	ALC ₅₀	135. 2
	(10066)		
Rabbit (1hr)	7000	ALC ₅₀	135. 2
	(10066)		

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

135

The majority of the literature inhalation toxicity data falls in the "Toxic" category as does the following data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory:

Rat

1-hour $LC_{50} = 5100 \text{ mg/M}^3$ or 7338 PPM

Mouse

1-hour $LC_{50} = 3360 \text{ mg/M}^3$ or 4837 PPM

REFERENCES:

- 135.1 Silver, S.D. and F. P. McGrath, J. Ind. Hyg. Tox., 30:7, 1948.
- 135.2 Boyd, E.M. et al., J. Ind. Hyg. Tox., 26:29, 1944.
- 135.3 Carpenter, C. P. et al., J. Ind. Hyg. Tox., 31:343, 1949.

TOXICITY DATA SHEET

COMPOUND: CARBON DIOXIDE and ETHYLENE OXIDE
MIXTURES (less than 10% Carbon Dioxide)

CODE: 148

CLASSIFICATION:

TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 166			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Ethylene oxide is the more toxic component in the mixture, so toxicity is rated on ethylene oxide basis.

REFERENCES:

See data sheet 166.

TOXICITY DATA SHEET

COMPOUND: CARBON DISULFIDE

CODE: 149

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
Cat(48min)	122,000 (39,284)	Lethal	149.1
Rabbit (6-1/4hr)	16000 (5152)	Lethal	149.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

149

The data falls in the "Toxic" category.

REFERENCES:

149.1 Lehmann, K. B., Arch. f. Hyg., 20:26, 1894.

149.2 Lewin, Arch. f. Path. Anat. Physiol., 78:113, 1879.

TOXICITY DATA SHEET

COMPOUND: CARBON MONOXIDE

CODE: 150

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat(4hr)	2070 (1807)	LC ₅₀	150. 1
Mouse(4hr)	6550 (5718)	LC ₅₀	150. 1
Dog(46min)	4400 (3841)	Lethal	150. 2
Monkey	_____	_____	_____
Other	_____	_____	_____
GP(4hr)	2800 (2444)	LC ₅₀	150. 1
Cat(35min)	10,000 (8730)	Lethal	150. 2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

The data fall in the "Toxic" category.

REFERENCES:

- 150.1 Rose, C. S. et al., Toxicol. Appl. Pharmacol., 17:752, 1970.
- 150.2 Flury, F. and F. Zernik, Abderhalden's Hdb., 4.7b, 1360.

TOXICITY DATA SHEET

COMPOUND: CARBON TETRACHLORIDE

CODE: 151

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat (1hr)	120,000 (19056) (measured)	ALC ₅₀	151.1
Mouse (7hr)	49,000 (7780)	LC ₅₀	151.2
Dog			
Monkey			
Other			
Cat (2hr)	240,000 (38,110)	Lethal	151.5

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog	4000	MLD	151.3
Monkey			
Cat			
Guinea Pig			
Other-Rabbit	640	Lethal	151.5

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Dog	I. V.	125	MLD	151.3
2.	Rabbit	S. C.	3000	Lethal	151.3
3.	Mouse	I. P.	4620	LD ₅₀	151.4
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

151

All data fall in "Toxic" category.

REFERENCES:

- 151.1 Adams, E. M. et al., Arch. Ind. Hyg. Occ. Med., 6:50, 1952.
- 151.2 Svirbely, J. L. et al., J. Ind. Hyg. Tox., 29:382, 1947.
- 151.3 Barsoum, G. S. and K. Saad; Q. J. Pharm. Pharmacol., 7:205, 1934.
- 151.4 Gehring, P. J., Toxicol. Appl. Pharmacol., 13:287, 1968.
- 151.5 Flury, F. and F. Zernik, Abderhalden's Hdb., 4.7b:1405.

TOXICITY DATA SHEET

COMPOUND: CHLORINE

CODE: 152

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man(30min)	1250 (430)	Lethal	152.3
Rat (1hr)	850 (293)	LC ₅₀	
Mouse(1hr)	397 (137)	LC ₅₀	
Dog(30min)	2320 (800)	Lethal	152.1
Monkey			
Other			
Cat(1hr)	400-900 (138-310)	Lethal	152.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

The following data were generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory:

Rat 1 hour LC_{50} = 850 mg/m³ or 293 ppm
95% Confidence Limits 754-955 mg/m³ or 260-329 ppm

Mouse 1 Hour LC_{50} = 397 mg/m³ or 137 ppm
95% Confidence Limits 346-462 mg/m³ or 119-159 ppm

Data fall in "Highly Toxic" category.

REFERENCES:

- 152.1 Barbour, H. G., J. Pharm. Expt. Therap., 14:65, 1919.
- 152.2 Lehmann, K. B., Arch. f. Hyg., 7:233, 1887.
- 152.3 Prentiss, A. M., Chemicals in War, McGrall-Hill, N. Y., 1937.

TOXICITY DATA SHEET

COMPOUND: CHLORINE TRIFLUORIDE

CODE: 153

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man (4hr)	361 (95)	LC ₅₀	153.2
Rat(1hr)	1135 (300)	ALC ₅₀	153.1
Mouse(1hr)	670 (176)	LC ₅₀	153.1
Dog			
Monkey(1hr)	865 (227)	LC ₅₀	153.1
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

153

The data all fall into the "Highly Toxic" category.

REFERENCES:

- 153.1 MacEwen, J. D. and E. H. Vernot, Toxic Hazards Research Unit Annual Report: 1970, AMRL-TR-70-77, Aerospace Medical Research Laborator WPAFB, Ohio.
- 153.2 Horn, H. J. and R. J. Weir, Arch. Ind. Health, 12:515, 1955.

TOXICITY DATA SHEET

COMPOUND: CHLOROPICRIN and METHYL CHLORIDE MIXTURES

CODE: 154

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 029 for Chloropicrin Toxicity.			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

154

Based on chloropicrin acute toxicity data, which is the most toxic compound of the mixture, it falls in the "Extremely Toxic" classification.

REFERENCES:

See data sheet 029.

TOXICITY DATA SHEET

COMPOUND: CHLOROPRENE
(2-Chlorobutadiene, -1,3), INHIBITED

CODE: 155

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat(8hr)	2200 (605)	ALC ₁₀₀	155.1
(8hr)	600 (165)	ALC ₁₀₀	155.1
Mouse(1hr)	3000 (825)	ALC ₁₀₀	155.1
Dog			
Monkey			
Other			
Cat(8hr)	1290 (355)	ALC ₁₀₀	155.1
Rabbit(8hr)	3870 (1064)	ALC ₁₀₀	155.1

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	2900	ALD ₁₀₀	155.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Mouse	S. C.	1450	ALD ₈₅	155.1
2.	Rat	S. C.	29,000	ALD ₈₅	155.1
3.	Cat	S. C.	435	ALD ₈₅	155.1
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data falls in "Toxic" category.

REFERENCES:

155.1 von Oettingen, W. F., J. Ind. Hyg. Tox., 18:40, 1936.

TOXICITY DATA SHEET

COMPOUND: COAL GAS

CODE: 156

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 150			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

156

Since coal gas contains approximately 9% carbon monoxide which is the most toxic constituent, it is classified "Toxic."

REFERENCES:

See data sheet 150.

TOXICITY DATA SHEET

COMPOUND: CYANOGEN, Liquefied, (CN₂)

CODE: 158

CLASSIFICATION: T O X I C

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Data Sheet Number 39			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

158

Release of cyanogen, liquefied, results in the formation of cyanogen gas, No. 039.

REFERENCES:

See data sheet 039.

TOXICITY DATA SHEET

COMPOUND: CYCLONITE(CYCLOTRIMETHYLENE-
TRINITRIMINE, OR HEXOGENE, OR
R.D.X.)

CODE: 159

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	200	MLD ₅₀	159.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

159

The acute oral toxicity for the rat falls in the "Toxic" category. Although bizarre human effects have been reported from the inhalation or ingestion of this compound or a related mixture of cyclonite in a plastic explosive, (C-4), doses as high as 2600 mg/kg have not been lethal (159. 2). The effects on the nervous system include convulsive seizures. This response has also been reported in men chronically exposed to cyclonite in the manufacturing process (159. 3, 159. 4), again with non-lethal results. von Oettingen also reported this finding in dogs fed 50 mg/kg of cyclonite on a daily schedule.

REFERENCES:

- 159. 1 von Oettingen, W. F. et al., J. Ind. Hyg. Toxicol., 31:21, 1949.
- 159. 2 Stone, W. J. et al., Arch. Int. Med., 124:726, 1969.
- 159. 3 Barsotti, M. and D. Crotti, Med de Labor., 40:107, 1949.
- 159. 4 Kaplan, A. S. et al., Arch. Environ. Health, 10:877, 1965.

TOXICITY DATA SHEET

COMPOUND: DECABORANE

CODE: 160

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse(4hr)	122 (24)	LC ₅₀	160.1
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	100	ALD ₁₀₀	160.2
Mouse	40	ALD ₅₀	160.2
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Mouse	I. P.	31.6	ALD ₅₀	160.2
2.	Rabbit	Skin	32-63	ALD ₅₀	160.2
3.	Rat	Skin	795	LD ₁₀₀	160.2
4.	Dog	I. P.	10-20	Lethal	160.3
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

160

Based on rabbit dermal toxicity, decaborane is classified as "Highly Toxic."

REFERENCES:

- 160.1 Svirbely, J. L., Arch. Ind. Hyg. Occ. Med., 10:298, 1954.
- 160.2 Svirbely, J. L., Arch. Ind. Health, 11:132, 1955.
- 160.3 Weir, F. W. et al., The Similar Pharmacologic and Toxic Effects of Pentaborane, Decaborane and Reserpine, AMRL-TR-65-49, Aerospace Medical Research Laboratory, WPAFB, Ohio, 1965.

TOXICITY DATA SHEET

COMPOUND: DIBORANE

CODE: 161

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	175-200 (159-181)		
(15min)		LC ₅₀	161.3
Rat(4hr)	45-94 (41-82)	LC ₅₀	161.2
Mouse(4hr)	33 (30)	LC ₅₀	161.2
Dog			
Monkey			
Other			
GP(10-1/2hr)	58 (53)	ALC ₁₀₀	161.1

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

161

Inhalation data fall into "Extremely Toxic" category.

REFERENCES:

- 161.1 Stumpe, A. R., Arch. Ind. Health, 21:519, 1960.
- 161.2 Jacobson, K. H and L. H. Lawson, Toxicol. Appl. Pharmacol., 4:215, 196
- 161.3 Krackow, E. H., Arch. Ind. Hyg. Acc. Med., 8:335, 1953.

TOXICITY DATA SHEET

COMPOUND: 1,1-DIFLUOROETHYLENE
(Vinylidene Fluoride)

CODE: 162

CLASSIFICATION: "BELOW" T O X I C

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	336,000		
(4hr)	(128,352)	ALC ₅₀	162.2
Rat(18hr)	2 x 10 ⁶ (764,000)	non-fatal	162.1
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

162

Acute inhalation toxicity data fall below "Toxic" category.

REFERENCES:

- 162.1 Lester, D. and L. A. Greenberg, Arch. Ind. Hyg. Occ. Med., 2:335, 1950.
- 162.2 Carpenter, C. P. et al., J. Ind. Hyg. Toxicol., 31:343, 1949.

TOXICITY DATA SHEET

COMPOUND: DINITROPHENOL, Dry or Containing
less than 15% Water

CODE: 163

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	100	Lethal	163.1
Mouse			
Dog	30 50	Lethal Lethal	163.2 163.3
Monkey			
Cat			
Guinea Pig			
Other-Rabbit	200	Lethal	163.3

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS.**	REF.
1. Guinea Pig	Skin	700	Lethal	163.1
2. Dog	S. C.	25	Lethal	163.2
3. Dog	S. C.	50	Lethal	163.3
4. Rabbit	S. C.	30	Lethal	163.2
5. Dog	N	30	Lethal	163.3
6.				

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

163

The data fall within the "Highly Toxic" classification.

REFERENCES:

- 163.1 Spencer, H. C. et al., J. Ind. Hyg. & Toxicol., 30:10, 1948.
- 163.2 Tainter, M. L. and W. C. Cutting, J. Pharmacol. & Exptl. Therap.,
49:187, 1933.
- 163.3 Magne, H. et al., Ann. de Physiol. et de Physico. Biol., 7:1, 1932.

TOXICITY DATA SHEET

COMPOUND: ETHYLENE OXIDE

CODE: 166

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
(4hr)	7200 (4000)	LC ₅₀	166.2
Rat(4hr)	2630 (1462)	LC ₅₀	166.1
Mouse(4hr)	1504 (836)	LC ₅₀	
Dog(4hr)	1750 (973)	LC ₅₀	
Monkey			
Other			
GP(2-1/2hr)	12,600 (7,000)	Lethal	166.3

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Inhalation data fall in the "Toxic" category.

REFERENCES:

- 166.1 Jacobson, K. H. et al., Arch. Ind. Health, 13:237, 1956.
- 166.2 Carpenter, C. P. et al., J. Ind. Hyg. Tox., 31:343, 1949.
- 166.3 Waite, C. P. et al., Public Health Rept., 45:1832, 1930.

TOXICITY DATA SHEET

COMPOUND: ETHYLENEIMINE, Inhibited

CODE: 167

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
(4hr)	109 (62)	ALC ₅₀	167.4
Rat(1hr)	440 (250)	ALC ₅₀	167.2
Mouse(10min)	3930 (2236)	LC ₅₀	167.3
Dog			
Monkey			
Other			
GP(1hr)	440 (250)	ALC ₅₀	167.2

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	15	ALD ₅₀	167.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS.**	REF.
1. Guinea Pig	Skin	11	ALD ₅₀	167.1
2.				
3.				
4.				
5.				
6.				

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

167

Although the oral data fall in the "Highly Toxic" category, the dermal toxicity of this volatile liquid is high enough to characterize it as "Extremely Toxic."

REFERENCES:

- 167.1 Smyth, H. F. and C. P. Carpenter, J. Ind. Hyg. Tox., 30:63, 1948.
- 167.2 Carpenter, C. P. et al., J. Ind. Hyg. Tox., 30:2, 1948.
- 167.3 Silver, S. D. and F. P. McGrath, J. Ind. Hyg. Tox., 30:7, 1948.
- 167.4 Carpenter, C. P. et al., J. Ind. Hyg. Tox., 31:343, 1949.

TOXICITY DATA SHEET

COMPOUND: FERROSILICON
(Data are for Phosphine and Arsine)

CODE: 168

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat ¹ (1hr)	800 (580)	Lethal	168. 1
Mouse ² (50min)	100 (72)	LC ₅₀	168. 2
Dog	_____	_____	_____
Monkey ² (15min)	450 (320)	LC ₈₀	168. 3
Other	_____	_____	_____
Cat ¹ (2hr)	240(173)	Lethal	168. 1
Rabbit ² (30min)	450 (320)	ALC ₁₀₀	168. 3
GP ¹ (2hr)	400 (288)	Lethal	168. 1

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

1 Phosphine Data

2 Arsine Data

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

168

Ferrosilicon and Aluminum Ferrosilicon containing over 30% silicon liberate phosphine and arsine in the presence of water or moist air as on ships or in the manufacture of steel. The inhalation toxicity data for phosphine and arsine both fall in the "Extremely Toxic" category.

REFERENCES:

- 168.1 Rebmann, Zschr. Gesundhtechn., 25:279, 1933.
- 168.2 Levy, Q. J. Exp. Physiol., 34:47, 1947.
- 168.3 Kensler, C. J. et al., J. Pharm. Expt. Therap., 88:99, 1946.

TOXICITY DATA SHEET

COMPOUND: FLUORINE

CODE: 169

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat(1hr)	287 (185)	LC ₅₀	169.1
Mouse(1hr)	233 (150)	LC ₅₀	169.1
Dog			
Monkey			
Other			
GP(1hr)	264 (170)	LC ₅₀	169.1
Rabbit(30min)	420 (270)	LC ₅₀	169.1

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

169

The data fall in the "Extremely Toxic" category.

REFERENCES:

- 169.1 Keplinger, M.L. and L. W. Suissa, Am. Ind. Hyg. Assoc. J., 29:10, 1968.

TOXICITY DATA SHEET

COMPOUND: HYDRAZINE, ANHYDROUS

CODE: 171

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
(1hr)	830 (634)	ALC ₅₀	171.2
Rat(4hr)	109-400	ALC ₅₀	171.2
	(83-306)		
Mouse(4hr)	330 (252)	LC ₅₀	171.4
Dog			
Monkey			
Other			
Rat(4hr)	750 (573)	LC ₅₀	171.4

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	60	LD ₅₀	171.3
Mouse	59	LD ₅₀	171.3
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS. **	REF.
1. Rat	I. P.	64	LD ₅₀	171.1
2. Dog	I. V.	25	ALD ₅₀	171.3
3. Mouse	I. V.	57	LD ₅₀	171.3
4. Mouse	I. P.	62	LD ₅₀	171.3
5. Rat	I. V.	55	LD ₅₀	171.3
6. Rat	I. P.	59	LD ₅₀	171.3

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

171

All data fall in the "Highly Toxic" classification.

REFERENCES:

- 171.1 O'Brien, R. D. et al., Toxicol. Appl. Pharmacol., 6:371, 1964.
- 171.2 Comstock, C. C. et al., Arch. Ind. Hyg. Occ. Med., 10:476, 1954.
- 171.3 Witkin, L. B., Arch. Ind. Health, 13:34, 1956.
- 171.4 Jacobson, K. H. et al., AMA Arch. Ind. Health, 12:609, 1955.

TOXICITY DATA SHEET

COMPOUND: HYDROFLUORIC ACID, Solution

CODE: 172

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 174			

GRAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

172

Hydrofluoric acid spilled from its container would rapidly evolve hydrogen fluoride gas which is, in turn, "Highly Toxic" by the inhalation route.

REFERENCES:

See data sheet 174.

TOXICITY DATA SHEET

COMPOUND: HYDROGEN BROMIDE, Anhydrous

CODE: 173

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat (1hr)	9450 (2858)	LC50	
Mouse(1hr)	2690 (814)	LC50	
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

173

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 1 Hour LC_{50} = 9450 mg/m³
95% Confidence Limits (8550-10,480) or 2858 ppm
2582-3164 ppm

Mouse 1 Hour LC_{50} = 2690 mg/m³
95% Confidence Limits (2320-3135) or 814 ppm
701-947 ppm

Data fall in "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: HYDROGEN FLUORIDE, ANHYDROUS

CODE: 174

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
(1hr)	1075 (1315)	LC ₅₀	174.2
Rat(1hr)	1045 (1278)	LC ₅₀	174.1
Mouse(1hr)	410 (500)	LC ₅₀	174.1
Dog			
Monkey(1hr)	1455 (1780)	LC ₅₀	174.1
Other			
GP(15min)	3550 (4342)	LC ₅₀	174.2

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

174

Inhalation toxicity data fall within the "Highly Toxic" classification.

REFERENCES:

- 174.1 MacEwen, J. D. and E. H. Vernot, Toxic Hazards Research Unit Annual Report: 1970, AMRL-TR-70-77, Aerospace Medical Research Laboratory, WPAFB, Ohio, 1970.
- 174.2 Rosenholtz, M. J. et al., Am. Ind. Assoc. J., 24:253, 1963.

TOXICITY DATA SHEET

COMPOUND: HYDROGEN SULFIDE

CODE: 175

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat(1hr)	990 (713)	LC ₅₀	_____
Mouse(1hr)	925 (673)	LC ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³. Parenthetical values are PPM,

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

175

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 1-Hour $LC_{50} = 990 \text{ mg/m}^3$
95% Confidence Limits (916-1068)

or

713 ppm
660-769 ppm

Mouse 1-Hour $LC_{50} = 925 \text{ mg/m}^3$
95% Confidence Limits (833-1047)

or

673 ppm
599-754 ppm

Data fall in "Highly Toxic" category.

TOXICITY DATA SHEET

COMPOUND: IRON PENTACARBONYL

CODE: 176

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
(5-1/2hr)	265 (33)	ALC ₅₀	176.2
Rat(30min)	910 (113)	LC ₅₀	176.1
Mouse(30min)	2190 (273)	LC ₅₀	176.1
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig	36	ALD ₅₀	176.3
Other-Rabbit	18	ALC ₅₀	176.3

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS. **	REF.
1. Rabbit	I. V.	17	ALD ₅₀	176.3
2.				
3.				
4.				
5.				
6.				

* Concentration in mg/M³. Parenthetical values are PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

176

Data falls within "Highly Toxic" category.

REFERENCES:

- 176.1 Sunderman, F.W. et al., Arch. Ind. Health, 19:11, 1959.
- 176.2 Gage, J. C., Brit. J. Ind. Med., 27:1, 1970.
- 176.3 Deichmann, W.B. and T. J. LeBlanc, J. Ind. Hyg. Tox., 25:415, 1943.

TOXICITY DATA SHEET

COMPOUND: LEAD NITRATE

CODE: 177

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	1330	ALD ₅₀	177.2
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	I. P.	438	Lethal	177.1
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

177

Only available data fall in "Toxic" category.

REFERENCES:

- 177.1 Buck, J. S. and D. M. Kumro, J. Pharm. Expt. Therap., 38:161, 1930.
- 177.2 Tartler, G., Arch. Hyg., 125:273, 1941.

TOXICITY DATA SHEET

COMPOUND: METHANOL

CODE: 179

CLASSIFICATION: **BELOW TOXIC**

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	12,880	LD ₅₀	179.1
Mouse			
Dog	6300	Lethal	179.3
Monkey	7000	MLD	179.4
Cat			
Guinea Pig			
Other-Rabbit	4750	Lethal	179.3

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	I. V.	15,900	MLD	179.2
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

179

Oral data fall below the "Toxic" classification.

REFERENCES:

- 179.1 Smyth, H. F. et al., J. Ind. Hyg. Tox., 23:259, 1941.
- 179.2 Lehman, A. J. and W. H. Newman, J. Pharm. Expt. Therap., 61:103, 1937.
- 179.3 Flury, F. and F. Zernik, Abderhalden's Hdb., 4.7b:1365.
- 179.4 Cooper, J. R. and P. Felig, Toxicol. Appl. Pharmacol., 3:202, 1961.

TOXICITY DATA SHEET

COMPOUND: NICKEL CARBONYL

CODE: 182

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
(30min)	400(57)	Lethal	182.4
Rat(30min)	240(34)	LC ₅₀	182.3
Mouse(30min)	67(10)	LC ₅₀	182.3
Dog			
Monkey			
Other			
Rabbit(1hr)	1100(157)	ALC	182.1
Cat(75min)	2800(400)	ALC	182.1
Cat(30min)	1900(272)	ALC ₅₀	182.3
Rabbit(30min)	300(43)	MLC	182.4

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS.**	REF.
1. Rats	63	I. V.	LD ₅₀	182.2
2.				
3.				
4.				
5.				
6.				

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

182

Reliable inhalation toxicity data based on large numbers of animals fall in the "Extremely Toxic" classification.

REFERENCES:

- 182.1 Armit, H. W., J. Hygiene, 8:565, 1908.
- 182.2 Sunderman, F.W. et al., Toxicol. Appl. Pharmacol., 10:398, 1967.
- 182.3 Kincaid, J.F. et al., Arch. Ind. Hyg. Occ. Med., 8:48, 1953.
- 182.4 Barnes, J. and F. A. Denz, Brit. J. Ind. Med., 8:117, 1951.

TOXICITY DATA SHEET

COMPOUND: NITRIC ACID, RED FUMING

CODE: 183

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man (4hr)	126 (49)	LC50	183.1
Rat(30min)	260 (100)	LC50	183.1
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

183

The principal ingredient of fuming red nitric acid in atmospheric exposures is nitrogen dioxide. The acute inhalation toxicity data are consistent with those of nitrogen dioxide and fall into the "Extremely Toxic" category, to coincide with 095, 099-102.

REFERENCES:

183.1 Gray, E. L., Arch. Ind. Hyg. Occ. Med., 10:418, 1954.

TOXICITY DATA SHEET

COMPOUND: NITRIC OXIDE and NITROGEN
TETROXIDE MIXTURES

CODE: 184

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 099			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

184

In the presence of air, the nitric oxide component would be rapidly converted to nitrogen dioxide - nitrogen tetroxide and have the toxicity of this substance.

REFERENCES:

See data sheet 099.

TOXICITY DATA SHEET

COMPOUND: NITROGLYCERIN (Desensitized with at least 40%, by weight, nonvolatile phlegmatizer)

CODE: 185

CLASSIFICATION:

TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	100	MLD	185.2
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

SPECIES	ROUTE	DOSE***	SYS.**	REF.
1. Rabbit	I. V.	45	ALD ₅₀	185.1
2.				
3.				
4.				
5.				
6.				

* Concentration in mg/M³

** System for expression of toxicity

*** Dose in mg/Kg

JUSTIFICATION:

185

Classification based on nitroglycerin toxicity only and falls in "Toxic" category.

REFERENCES:

185.1 Oltman, T. V. and L. A. Crandall, J. Pharm. Expt. Therap., 41:121, 1931.

185.2 Orestano, Arch. Ital. di Scienze Farm., 6:153, 1937.

TOXICITY DATA SHEET

COMPOUND: PHOSPHORUS, White or Yellow, Under
Water or in Solution

CODE: 187

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other- Rabbit 7		Lethal	187.1
Rabbit 10		Lethal	187.2

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Rabbit	S. C.	12.5	Lethal	187.3
2.	Dog	S. C.	2-3	Lethal	187.4
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION

187

Oral data fall in "Extremely Toxic" category.

REFERENCES:

- 187.1 Hirz, O., Zschr. Biol., 60:187, 1913.
- 187.2 Frank, E., Arch. expt. Path. Pharm., 64:274, 1911.
- 187.3 Santesson, Skand. Arch. Physiol., 15:259, 1904.
- 187.4 Rubow, Arch. expt. Path. Pharm., 52:173, 1905.

TOXICITY DATA SHEET

COMPOUND: POTASSIUM BIFLUORIDE
(Potassium Acid Fluoride)

CODE: 188

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig	150	ALD	188.1
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Guinea Pig		250	ALD	188.1
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

188

Oral data place this compound in the "Toxic" category.

REFERENCES:

188.1 Simonin, P. et A. Pierron, C. rend. Soc. biol., 124:133, 1937.

TOXICITY DATA SHEET

COMPOUND: POTASSIUM FLUORIDE

CODE: 189

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	250	MLD	189.1
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Guinea Pig	S. C.	350	MLD	189.1
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

189

Oral data place this compound in the "Toxic" category.

REFERENCES:

189.1 Simonin, P. et A. Pierron, C. rend. Soc. biol., 124:133, 1937.

TOXICITY DATA SHEET

COMPOUND: POTASSIUM PHOSPHIDE

CODE: 190

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 168, Phosphine Data			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

190

Potassium phosphide decomposes on contact with moisture to phosphine which is classified "Extremely Toxic."

REFERENCES:

Sec Reference 168.1

TOXICITY DATA SHEET

COMPOUND: PYRIDINE

CODE: 192

CLASSIFICATION:

TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat (4hr)	12,000(3708)	Lethal	192.1
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	1580	ALD ₅₀	192.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig	4000	MLD	192.3
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rat	S. C.	1000	LD ₅₀	192.2
2.	Guinea Pig	I. P.	870	MLD	192.3
3.	Mouse	I. P.	121	MLD	192.4
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

192

Data fall in "Toxic" classification.

REFERENCES:

- 192.1 Snyth, H. F., et al., Arch. Ind. Hyg. Occup. Med., 4:119, 1951.
- 192.2 Brazda, F. G. and R. A. Coulson, Proc. Soc. Expt. Biol. Med., 62:19, 1946.
- 192.3 Brunton, T. S. and F. W. Tunnicliffe, J. Physiol., 17:272, 1894.
- 192.4 Baxter, J. H., J. Clin. Invest., 25:908, 1946.

TOXICITY DATA SHEET

COMPOUND: SILICON TETRAFLUORIDE

CODE: 193

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	_____	_____	_____
Rat(1hr)	3910 (919)	LC ₅₀	193.1
Mouse(12hr)	1275 (300)	ALC	193.2
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

193

Inhalation data fall in "Toxic" category.

REFERENCES:

193.1 Scheel, L. D., et al., Am. Ind. Hyg. Assoc. J., 29:41, 1968.

193.2 Gage, J. C., Brit. J. Ind. Med., 27:1, 1970.

TOXICITY DATA SHEET

COMPOUND: SODIUM PHOSPHIDE

CODE: 195

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 168, Phosphine Data			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

195

Sodium phosphide decomposes on contact with moisture to phosphine which is classified "Extremely Toxic."

REFERENCES:

See Reference 168.1

TOXICITY DATA SHEET

COMPOUND: STRONTIUM PHOSPHIDE

CODE: 196

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
See Phosphine Data, Data Sheet Number 168.			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

196

Strontium phosphide, on contact with moisture, decomposes to phosphine which is classified "Extremely Toxic."

REFERENCES:

See Reference 168.1

TOXICITY DATA SHEET

COMPOUND: SULFUR DIOXIDE

CODE: 197

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat (20min)	2600 (993)	Lethal	197.1
(5hr)	1600 (611)	Lethal	197.1
Mouse (20min)	2000 (764)	Lethal	197.1
Dog			
Monkey			
Other			
Mouse (1hr)	1595 (609)	MLC	197.2

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

*** Dose in mg/Kg

JUSTIFICATION:

197

Most of the data fall in the "Highly Toxic" classification.

REFERENCES:

197.1 Flury F. and F. Zernik, Abderhalden's Hdb., 4.7b, 1396.

197.2 Weedon, F. R., et al., Cont. Boyce Thomps. Inst., 10:281, 1939.

TOXICITY DATA SHEET

COMPOUND: SULFURIC ACID, Fuming

CODE: 198

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
GP(1hr)	200	ALC ₅₀	198.2
GP:			
Old(8hr)	50	LC ₅₀	198.1
Young(1hr)50		LC ₅₀	198.1

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	2140	LD ₅₀	198.3
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Particulate aerosol.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

198

Inhalation data fall in "Extremely Toxic" classification and inhalation is the most probable form of toxic exposure.

REFERENCES:

- 198.1 Amdur, M. O., et al., Arch. Ind. Hyg. Occup. Med., 5:311, 1952.
- 198.2 Amdur, M. O., Arch. Ind. Health, 18:407, 1958.
- 198.3 Smyth, H. F., et al., Am. Ind. Hyg. Assoc. J., 30:470, 1969.

TOXICITY DATA SHEET

COMPOUND: MAGNESIUM PHOSPHIDE

CODE: 200

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Data Sheet Number 168, Phosphine Data.			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

200

Magnesium phosphide, on contact with moisture, decomposes to phosphine which is classified "Extremely Toxic."

REFERENCES:

See Reference 168.1

TOXICITY DATA SHEET

COMPOUND: ALUMINUM PHOSPHIDE (AIP)

CODE: 201

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			
See Phosphine Data, Data Sheet No. 168			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

201

Aluminum phosphide, on contact with moisture, decomposes to phosphine which
's classified "Extremely Toxic."

REFERENCES:

See Reference 168.1

TOXICITY DATA SHEET

COMPOUND: ANILINE HYDROCHLORIDE

CODE: 202

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	1072	LD ₅₀	
Mouse	841	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 1072 mg/kg
95% Confidence Limits (725-1585)

Mouse 14-Day LC_{50} = 841 mg/kg
95% Confidence Limits (474-1493)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: BENZIDINE

CODE: 203

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	309	LD50	
Mouse	214	LD50	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
 ** System for expression of toxicity
 *** Dose in mg/Kg

JUSTIFICATION:

20:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 309 mg/kg
95% Confidence Limits (169-5424)

Mouse 14-Day LD₅₀ = 214 mg/kg
95% Confidence Limits (144-317)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: BENZYL CHLORIDE

CODE: 204

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	_____	_____	_____
Rat	_____*	_____	_____
Mouse	_____*	_____	_____
Dcg	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____
*Rats and mice survived exposure to 2mg/liter concentrations for one hour. Air Force data.			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	_____	_____	_____
Rat	1231	LD50	_____
Mouse	1624	LD50	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 1231 mg/kg
95% Confidence Limits (1145-1656)

Mouse 14-Day LD₅₀ = 1624 mg/kg
95% Confidence Limits (1153-2185)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: BENZYLIDINE CHLORIDE

CODE: 205

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat	*		
Mouse	*		
Dog			
Monkey			
Other			

*Rats and mice survived exposure to 2mg/liter concentrations for one hour. Air Force data.

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	3249	LD ₅₀	
Mouse	2462	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 3249 mg/kg
95% Confidence Limits (2360-4473)

Mouse 14-Day LD₅₀ = 2462 mg/kg
95% Confidence Limits (1788-3389)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: O-CHLORONITROBENZENE

CODE: 206

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	268	LD50	
Mouse	135	LD50	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

206

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 268 mg/kg
95% Confidence Limits (181-396)

Mouse 14-Day LD_{50} = 135 mg/kg
95% Confidence Limits (110-200)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: P-CHLORONITROBENZENE

CODE: 208

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	812	LD ₅₀	
Mouse	1414	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 812 mg/kg
95% Confidence Limits (590-1118)

Mouse 14-Day LD₅₀ = 1414 mg/kg
95% Confidence Limits (1070-2044)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: DIMETHYL SULFATE

CODE: 209

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
(26min)	386 (75)	ALC ₅₀	209.2
Rat(4hr)	170(33)	ALC ₅₀	209.1
Mouse(17min)	386(75)	ALC ₅₀	209.2
Dog			
Monkey			
Other			
GP(24min)	386 (75)	ALC ₅₀	209.2

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	440	LD ₅₀	209.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

209

Extropolation values of the acute inhalation toxicity data fall in the "Extremely Toxic" classification.

REFERENCES:

- 209.1 Smyth, H. F., et al., Arch. Ind. Hyg. Occup. Med., 4:119, 1951.
- 209.2 Ghiringhelli, L., et al., Med. de Lav., 48:634, 1957.

TOXICITY DATA SHEET

COMPOUND: 4,6-DINITRO-ORTHO-CRESOL

CODE: 214

CLASSIFICATION: HIGHLY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	33	LD ₅₀	_____
Mouse	21	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 33 mg/kg
95% Confidence Limits (22-49)

Mouse 14-Day LD₅₀ = 21 mg/kg
95% Confidence Limits (12-37)

Data fall in the "Highly Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,3-DINITROTOLUENE

CODE: 216

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	1122	LD ₅₀	
Mouse	1072	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 1122 mg/kg
95% Confidence Limits (501-2516)

Mouse 14-Day LD₅₀ = 1072 mg/kg
95% Confidence Limits (725-1585)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,4-DINITROTOLUENE

CODE: 217

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	268	LD ₅₀	
Mouse	1625	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

21

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 268 mg/kg
95% Confidence Limits (181-396)

Mouse 14-Day LD_{50} = 1625 mg/kg
95% Confidence Limits (1180-2236)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,5-DINITROTOLUENE

CODE: 218

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	707	LD ₅₀	
Mouse	1231	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 707 mg/kg
95% Confidence Limits (513-974)

Mouse 14-Day LD₅₀ = 1231 mg/kg
95% Confidence Limits (730-2077)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,6-DINITROTOLUENE

CODE: 219

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	177	LD ₅₀	
Mouse	1000	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and
United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 177 mg/kg
95% Confidence Limits (128-243)

Mouse 14-Day LD_{50} = 1000 mg/kg
95% Confidence Limits (589-1697)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 3,4-DINITROTOLUENE

CODE: 220

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	1072	LD50	
Mouse	1414	LD50	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

226

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 1072 mg/kg
95% Confidence Limits (725-1585)

Mouse 14-Day LD_{50} = 1414 mg/kg
95% Confidence Limits (457-4379)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: EPICHLOROHYDRIN

CODE: 222

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat (8hr)	845 (224)	ALC ₅₀	222.1
Mouse (30min)	28,000 (7,414)	ALC ₁₀₀	222.2
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	90	LD ₅₀	222.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	Rabbit	Skin	1530	LD ₅₀	222.1
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³ Parenthetical value is PPM.

** System for expression of toxicity

*** Dose in mg/Kg

JUSTIFICATION:

Acute toxicity data fall in the "Toxic" classification.

REFERENCES:

- 222.1 Smyth, H. F. and C. P. Carpenter, J. Ind. Hyg. & Toxicol., 30:63, 1948
- 222.2 Smyth, H. F. and U. C. Pozzani, Shell Chemical Corp. Tech. Bull. SC:57;

TOXICITY DATA SHEET

COMPOUND: ETHYLENE CHLOROHYDRIN

CODE: 224

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat (4hr)	108 (33)	ALD ₅₀	224.3
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	95	LD ₅₀	224.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig	110	LD ₅₀	224.1
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Guinea Pig	Skin	83.4	LD ₅₀	224.2
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

224

Human fatal exposures have been reported resulting from air concentrations around 1000 mg/M³ ethylene chlorohydrin, (224.4, 224.5) and serious central nervous system effects have been reported from inhalation exposures as low as 59 mg/M³ (224.6). Because of these reported human injuries and the acute inhalation ALC₅₀ in the rat of 33 ppm (108 mg/M³), ethylene chlorohydrin is classified as "Extremely Toxic."

REFERENCES:

- 224.1 Smyth, H. F., et al., J. Ind. Hyg. Toxicol. 23:259, 1941.
- 224.2 Smyth, H. F. and C. P. Carpenter, J. Ind. Hyg. & Toxicol., 27:93, 1945
- 224.3 Carpenter, C. P., et al., J. Ind. Hyg. & Toxicol., 31:343, 1949.
- 224.4 Dierker, H. and P. G. Brown, J. Ind. Hyg. & Toxicol., 26:277, 1944.
- 224.5 Bust, H. F., et al., J. Ind. Hyg. & Toxicol., 31:352, 1949.
- 224.6 Goldblatt, M. W. and W. E. Chiesman, Brit. J. Ind. Med., 1:207, 1944.

TOXICITY DATA SHEET

COMPOUND: ETHYLENE DIBROMIDE

CODE: 225

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat(1hr)	5300 (691)	LC ₅₀	225.1
Mouse			
Dog			
Monkey			
Other			
GP(3hr)	3000(391)	ALC ₅₀	225.1

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	146	LD ₅₀	225.1
Mouse	420	LD ₅₀	225.1
Dog			
Monkey			
Cat			
Guinea Pig	110	LD ₅₀	225.1
Other-Rabbit	55	LD ₅₀	225.1

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	Rabbit	Skin	300	ALD ₅₀	275.1
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³. Parenthetical value is PPM/
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

225

Acute toxicity data fall within the range for the "Toxic" classification.

REFERENCES:

225.1 Rowe, V. K., et al., Arch. Ind. Hyg. & Occup. Med., 6:158, 1952.

TOXICITY DATA SHEET

COMPOUND: ETHYLENEDIAMINE

CODE: 226

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat	9900(4038)	ALC ₁₀₀	226.2
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	1160	LD ₅₀	226.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig	470	LD ₅₀	226.1
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Rabbit	Skin	730	LD ₅₀	226.2
2.					
3.					
4.					
5.					
6.					

* Concentration in mg/M³ Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

226

Oral dermal and inhalation toxicity data fall in the "Toxic" classification.

REFERENCES:

226.1 Smyth, H. F., et al., J. Ind. Hyg. & Toxicol., 23:259, 1941.

226.2 Smyth, H. F., et al., Arch. Ind. Hyg. Occup Med., 4:119, 1951.

TOXICITY DATA SHEET

COMPOUND: 2,2'-DITHIOBISBENZOTHAZOLE

CODE: 227

CLASSIFICATION: **BELOW TOXIC**

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	>12,000	LD ₅₀	_____
Mouse	>12,000	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ => 12,000

Mouse 14-Day LD₅₀ => 12,000

Data are below the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: M-NITROANILINE

CODE: 228

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	535	LD ₅₀	
Mouse	308	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 535 mg/kg
95% Confidence Limits (362-793)

Mouse 14-Day LD_{50} = 308 mg/kg
95% Confidence Limits (228-416)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: P-NITROANILINE

CODE: 229

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	3249	LD ₅₀	_____
Mouse	812	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

229

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 3249 mg/kg
95% Confidence Limits (1984-5702)

Mouse 14-Day LD₅₀ = 812 mg/kg
95% Confidence Limits (590-1118)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: O-NITROPHENOL

CODE: 230

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	2828	LD ₅₀	
Mouse	1297	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

230

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 2828 mg/kg
95% Confidence Limits (2054-3894)

Mouse 14-Day LD₅₀ = 1297 mg/kg
95% Confidence Limits (894-1695)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: M-NITROPHENOL

CODE: 231

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man			
Rat	933	LD ₅₀	
Mouse	1414	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 933 mg/kg
95% Confidence Limits (645-1351)

Mouse 14-Day LD₅₀ = 1414 mg/kg
95% Confidence Limits (125-10,270)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: P-NITROPHENOL

CODE: 232

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	_____	_____	_____
Rat	616	LD ₅₀	_____
Mouse	467	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and
United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 616 mg/kg
95% Confidence Limits (447-848)

Mouse 14-Day LD₅₀ = 467 mg/kg
95% Confidence Limits (315-690)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: O-NITROTOLUENE

CODE: 233

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	891	LD ₅₀	
Mouse	2462	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the
United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 891 mg/kg
95% Confidence Limits (500-1584)

Mouse 14-Day LD₅₀ = 2462 mg/kg
95% Confidence Limits (1789-3390)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: M-NITROTOLUENE

CODE: 234

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	1072	LD ₅₀	
Mouse	1231	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 1072 mg/kg
95% Confidence Limits (725-1585)

Mouse 14-Day LD_{50} = 1231 mg/kg
95% Confidence Limits (894-1695)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: P-NITROTOLUENE

CODE: 235

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	_____	_____	_____
Rat	2144	LD50	_____
Mouse	1231	LD50	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

2.

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 2144 mg/kg
95% Confidence Limits (1449-3171)

Mouse 14-Day LD₅₀ = 1231 mg/kg
95% Confidence Limits (894-1695)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: PENTACHLOROETHANE

CODE: 236

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	_____	_____	_____
Rat	35,000 (4238)	Lethal	236.1
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	1750	MLD	236.2
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	Dog	I. V.	100	MLD	236.2
2.	Rabbit	S. C.	700	MLD	236.2
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

* Concentration in mg/M³. Parenthetical value is PPM.

** System for expression of toxicity

***Dose in mg/Kg

JUSTIFICATION:

236

Acute oral toxicity data fall within the "Toxic" classification.

REFERENCES:

236.1 Lazarew, N. W., Arch. Exp. Path. and Pharmacol., 141:19, 1929.

236.2 Barsoum, G. S. and K. Saad, Quart. J. Pharm. and Pharmacol., 7:205, 19

TOXICITY DATA SHEET

COMPOUND: 2,3-XYLIDINE

CODE: 238

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	933	LD ₅₀	
Mouse	1072	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

2

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 933 mg/kg
95% Confidence Limits (631-1380)

Mouse 14-Day LD_{50} = 1072 mg/kg
95% Confidence Limits (725-1586)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,4-XYLIDINE

CODE: 239

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	467	LD ₅₀	
Mouse	250	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 467 mg/kg
95% Confidence Limits (315-690)

Mouse 14-Day LD₅₀ = 250 mg/kg
95% Confidence Limits (147-424)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,5-XYLIDINE

CODE: 240

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	1297	LD ₅₀	_____
Mouse	841	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 1297 mg/kg
95% Confidence Limits (937-2135)

Mouse 14-Day LD₅₀ = 841 mg/kg
95% Confidence Limits (474-1493)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,6-XYLIDINE

CODE: 241

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	1231	LD ₅₀	_____
Mouse	707	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the
United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 1231 mg/kg
95% Confidence Limits (894-1695)

Mouse 14-Day LD₅₀ = 707 mg/kg
95% Confidence Limits (522-957)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 3,4-XYLIDINE

CODE: 242

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	812	LD50	
Mouse	707	LD50	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD_{50} = 812 mg/kg
95% Confidence Limits (590-1118)

Mouse 14-Day LD_{50} = 707 mg/kg
95% Confidence Limits (522-957)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 3,5-XYLIDINE

CODE: 243

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	707	LD ₅₀	
Mouse	421	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and
United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 707 mg/kg
95% Confidence Limits (469-1068)

Mouse 14-Day LD₅₀ = 421 mg/kg
95% Confidence Limits (279-635)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 1-CHLORONAPHTHALENE

CODE: 244

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	1540	LD ₅₀	_____
Mouse	1091	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

244

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 1540 mg/kg
95% Confidence Limits (1306-1717)

Mouse 14-Day LD₅₀ = 1091 mg/kg
95% Confidence Limits (964-1178)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2-CHLORONAPHTHALENE

CODE: 245

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS. **	REF.
Man	_____	_____	_____
Rat	2078	LD ₅₀	_____
Mouse	886	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 2078 mg/kg
95% Confidence Limits (1611-2673)

Mouse 14-Day LD₅₀ = 886 mg/kg
95% Confidence Limits (734-1070)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: CRESOLS (Mixed ortho, meta and para forms) CODE: 246

CLASSIFICATION: **T O X I C**

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	1454	LD ₅₀	_____
Mouse	861	LD ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- Concentration in mg/M³
- System for expression of toxicity
- Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 1454 mg/kg
95% Confidence Limits (563-3550)

Mouse 14-Day LD₅₀ = 561 mg/kg
95% Confidence Limits (465-677)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: 2,4-DICHLOROPHENOL

CODE: 247

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man			
Rat	2830	LD ₅₀	
Mouse	1625	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

2

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 2830 mg/kg
95% Confidence Limits (2054-3885)

Mouse 14-Day LD₅₀ = 1625 mg/kg
95% Confidence Limits (1007-2619)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: DIETHYL SULFATE

CODE: 248

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man			
Rat			
Mouse			
Dog			
Monkey			
Other			

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man			
Rat	1412	LD ₅₀	
Mouse	647	LD ₅₀	
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in mg/M³
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and
United States Air Force Toxic Hazards Laboratory.

Rat 14-Day LD₅₀ = 1412 mg/kg
95% Confidence Limits (1102-1552)

Mouse 14-Day LD₅₀ = 647 mg/kg
95% Confidence Limits (507-827)

Data fall in the "Toxic" category.

TOXICITY DATA SHEET

COMPOUND: TOLUENE DIISOCYANATE (TDI)

CODE: 249

CLASSIFICATION: EXTREMELY TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man (6hr)	600 (4265)	Lethal	249.1
Rat(4hr)	14 (100)	LC ₅₀	249.2
Mouse	10 (71)	LC ₅₀	249.2
Dog			
Monkey			
Other			
G. P. (4hr)	13 (92)	LC ₅₀	249.2
Rabbit(4hr)	11 (78)	LC ₅₀	249.2

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	7500	ALD	249.1
Rat	5800	LD ₅₀	249.1
Mouse			
Dog			
Monkey			
Cat			
Guinea Pig			
Other			

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.					
2.					
3.					
4.					
5.					
6.					

- * Concentration in PPM. Parenthetical value is Mg/M³.
- ** System for expression of toxicity
- ***Dose in mg/Kg

JUSTIFICATION:

249

Toluene diisocyanate is classified as "Extremely Toxic" because the one hour L value for most species will fall below 50 ppm.

REFERENCES:

- 249.1 Zapp, J. A., Hazards of Isocyanates in Polyurethane Foam Plastic Production, Arch. Ind. Health, 15:324, 1957.
- 249.2 Duncan, B., et al., Toluene Diisocyanate Inhalation Toxicity: Pathology and Mortality, Amer. Ind. Hyg. Assoc. J., 23:447, 1962.

TOXICITY DATA SHEET

COMPOUND: AMMONIA, Anhydrous Gas

CODE: 250

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC.*	SYS.**	REF.
Man	_____	_____	_____
Rat (1hr)	5100(7338)	LC ₅₀	_____
Mouse(1hr)	3360(4837)	LC ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE***	SYS.**	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE***	SYS.**	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³. Parenthetical value is PPM.
- ** System for expression of toxicity
- ***Dose in mg/Kg

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

or 7338 ppn
6822-789

or 4837 ppn
4409-53C

A-339

TOXICITY DATA SHEET

COMPOUND: ETHYL BROMIDE

CODE: 251

CLASSIFICATION: TOXIC

INHALATION TOXICITY

SPECIES	CONC. *	SYS. **	REF.
Man	_____	_____	_____
Rat	120,330(26,980)	LC ₅₀	_____
Mouse	72,385(16,230)	LC ₅₀	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Other	_____	_____	_____

ORAL TOXICITY

SPECIES	DOSE ***	SYS. **	REF.
Man	_____	_____	_____
Rat	_____	_____	_____
Mouse	_____	_____	_____
Dog	_____	_____	_____
Monkey	_____	_____	_____
Cat	_____	_____	_____
Guinea Pig	_____	_____	_____
Other	_____	_____	_____

OTHER ROUTES OF ADMINISTRATION

	SPECIES	ROUTE	DOSE ***	SYS. **	REF.
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____

- * Concentration in mg/M³. Parenthetical value is PPM.
- ** System for expression of toxicity
- *** Dose in mg/Kg

JUSTIFICATION:

Data generated under contract between the Department of Transportation and the United States Air Force Toxic Hazards Laboratory.

Rat 1 Hour LC_{50} = 120,330 mg/m^3 or 26,980 ppm
95% Confidence Limits (113,060-128,800) 25,350-28,710 ppm

Mouse 1 Hour LC_{50} = 72,385 mg/m^3 or 16,230 ppm
95% Confidence Limits (68,505-73,045) 15,360-18,620 ppm

Data fall in the "Toxic" category

APPENDIX B
A MODIFIED SYSTEM FOR CLASSIFICATION

B.1

The following classification system is proposed for consideration as an alternative to that shown on page 2.

	<u>Extremely Toxic</u>	<u>Highly Toxic</u>	<u>Toxic</u>
Inhalation, 1-Hour LC ₅₀	500 mg/M ³ or less	>500-2,000 mg/M ³	>2,000-200,000 mg/M ³
Oral, 14-Day Single Dose LD ₅₀	5 mg/Kg or less	>5-50 mg/Kg	>50-5000 mg/Kg
Skin Absorption (Dermal) LD ₅₀	20 mg/Kg or less	>20-200 mg/Kg	>200-20,000 mg/Kg

It differs from the system described on page 7 in that it uses mg/M³ values instead of ppm for inhalation toxicity of gases and vapors, as well as dusts and mists. Oral and skin absorption criteria are the same. This modified system would result in a change in classification for several materials, as can be seen from a comparison in Table B-1. As was mentioned in the Introduction, the following formula was used to interconvert values:

$$\text{PPM} = \frac{24.50 \times \text{mg/M}^3}{\text{mol. wt.}}$$

where ppm = parts per million by volume

mg/M³ = milligrams per cubic meter

mol. wt. = molecular weight of the gas or vapor.

Data are found in Tables III and IV and in Appendix A.

TABLE B-1
COMPOUNDS WHOSE CLASSIFICATION WOULD
CHANGE UNDER THE ALTERNATIVE CRITERIA^{1/}

<u>CODE</u>	<u>NAME</u>	<u>CLASSIFICATION</u>	
		<u>PPM CRITERIA</u>	<u>Mg/M³ CRITERIA</u>
039	Cyanogen Gas (CN) ₂	Toxic	Highly Toxic
095	Nitric Oxide	Highly Toxic	Extremely Toxic
099	Nitrogen Dioxide (Nitrogen Peroxide)	" "	" "
100	Nitrogen Peroxide (Nitrogen Dioxide)	" "	" "
101	Nitrogen Tetroxide	" "	" "
102	Nitrogen Tetroxide-Nitric Oxide Mixtures containing up to 32.2 percent weight nitric oxide	" "	" "
152	Chlorine	Toxic	Highly Toxic
153	Chlorine Trifluoride	"	" "
161	Diborane	Highly Toxic	Extremely Toxic
169	Fluorine	" "	" "
171	Hydrazine, anhydrous	Toxic	Highly Toxic
172	Hydrofluoric Acid Solution (Fluoric Acid, Hydrogen Fluoride Solution)	"	" "
174	Hydrogen Fluoride, anhydrous	"	" "
175	Hydrogen Sulfide	"	" "
183	Nitric Acid, Red Fuming	Highly Toxic	Extremely Toxic
184	Nitric Oxide and Nitrogen Tetroxide Mixtures	" "	" "
197	Sulfur Dioxide	Toxic	Highly Toxic

^{1/} Perhaps some others would change strictly on the basis numerical values, if available. The contractor's professional judgment was not challenged in cases where the recommendation was based on data not strictly coming within the specified Department of Transportation criteria.

END

DATE
FILMED

11-78

DDC